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THE SYNTHETIC FUELS PROGRAM

COMPLETED 118

ORIGINAL

HEARINGS

BEFORE THE
SUBCOMMITTEE ON ECONOMIC STABILIZATION
OF THE
COMMITTEE ON
BANKING, FINANCE AND URBAN AFFAIRS
HOUSE OF REPRESENTATIVES
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THE SYNTHETIC FUELS PROGRAMS

WEDNESDAY, SEPTEMBER 11, 1985

House of Representatives,
Subcommittee on Economic Stabilization,
Committee on Banking, Finance and Urban Affairs,
Washington, DC.

The subcommittee met at 9:30 a.m., in room 2220, Rayburn House Office Building, Hon. John J. LaFalce (chairman of the subcommittee) presiding.

Present: Chairman LaFalce; Representatives Levin, Carper, Shumway, McKinney, Wortley, and McCandless.

Chairman **LaFalce**. The Subcommittee on Economic Stabilization will come to order.

Our country's energy policy is clearly at a crossroads.

Five years ago, in the midst of an energy crisis, we embarked on a major national effort to produce synthetic fuels on a large-scale commercial basis. The Congress created the Synthetic Fuels Corporation to lead the way.

In the intervening 5 years, conditions have changed drastically. Oil was selling for $30 per barrel in 1980 and was projected to rise to $50 per barrel in 1985. It is selling for $27 per barrel today.

A prolonged energy shortage was forecast in 1980. Today we are enjoying an oil glut. Imports of oil to the United States have dropped from 8.4 barrels a day in 1979, representing 45 percent of domestic needs, to about 4.5 million barrels this year or 29 percent.

As a result, many in the Congress are now questioning our country's need for a synthetic fuels program. There is, in fact, legislation before the subcommittee to abolish the Synthetic Fuels Corporation and reconstitute a much smaller synfuels program in the Department of Energy.

Changed circumstances may well make a change in our national synfuels policy appropriate. However, before rushing to judgment on this issue, it is imperative that we not be shortsighted. The fact remains that world oil supplies can be easily disrupted, and world oil prices could well undergo rapid increases within a few years, despite the apparent oil glut.

The United States still imports almost one-third of its oil needs, and by the year 2000, this figure is expected to rise to 50 percent. Within the next decade, the United States will completely exhaust its supply of proven reserves, with little prospect of replacing them by increased exploration.

And the fact also remains that we are potentially energy rich. Our domestic supplies of coal and oil shale are sufficient to fulfill our energy needs for centuries, but unless we develop the technology to convert these solid fuels into liquid transportation fuels, they can never be used to strengthen our energy independence. We do not yet have commercial experience with coal liquids and oil shale that would tell us our technological options and the extent of our potential synthetic fuel capability.

The purpose of today's hearing is to explore the realities of our energy situation, the reasons behind the drastic change in circumstances we face, the risks that may attend continuing energy dependence, and the need and prospects for successful development of the necessary technology for efficient and environmentally sound synthetic fuels production.

We are fortunate to have with us this morning a panel of distinguished witnesses to address these issues—Dr. Henry Schuler of the Center for Strategic and International Studies, who should be joining us momentarily, John McCormick of the Environmental Policy Institute, and Michael Koleda, president of the Council on Synthetic Fuels.

Before we hear from our witnesses, though, I wonder if either the present ranking minority member of the subcommittee or the ranking minority member of the subcommittee at the time that the Synthetic Fuels Corporation was enacted into law have any comments they would like to make. Mr. Shumway?

Mr. SHUMWAY. Thank you, Mr. Chairman. I would like to join you in welcoming our distinguished panel of witnesses and to express my appreciation to them for being with us here this morning.

To most in Congress in 1980, including myself, synthetic fuels looked like an idea whose time had come, especially given the aftermath of the OPEC oil prices and the prediction of a tight oil market for years to come. In fact, I was a cosponsor of the first synfuels bill drafted by the committee and voted for it on the House floor. However, by the time it emerged from Congress, the bill bore little resemblance to the relatively focused and frugal legislation we had originally authorized. Although well-intentioned, the Energy Security Act was an excessive response to the perceived problems, and I could not support it.

In the 5 years since its enactment, I believe we must question whether the synthetic fuels program has lived up to its purpose, that is, providing the means for America's energy independence. Unfortunately, the current program is based on assumptions that have turned out to be wrong. The energy climate, both domestically and on a global basis, has changed radically. Oil prices have dropped substantially, as has the relative demand for energy. It has also become obvious that the synfuel production targets will not be met, and those already involved in Federal credit assistance are not economically realistic.

Indeed, the time is ripe to reevaluate the Synthetic Fuels Corporation or SFC. This is not to say that we should overlook or ignore the need for a national energy policy. A national energy policy is a vital component of our national security policy and a guarantee of independence. However, the present synfuels policy and the SFC are not the answer. Even if we have another fuel crisis—and the possibility of one does exist—there are better agencies that can cope with the situation, and there are more economical ways to do so.

In lieu of the SFC, whose appropriations now exceed $6 billion, I would suggest that this type of Federal credit assistance program must be seriously questioned, particularly at a time when we are suffering the crushing weight of a monstrous Federal budget deficit.

I believe we have taken the first step in the right direction when the House, during its consideration of the Interior Department fiscal year 1986 appropriations bill, approved an amendment which rescinded all but $500 million of SFC's funds and transferred that amount to a scaled-down program within the Department of Energy for financial assistance for applications of synthetic fuels technology. I voted for the amendment because I believed it offered a balanced approach to fashioning a viable and economically realistic synthetic fuels policy.

Given the amendment's overwhelming passage and the fact that the fate of the SFC now lies with the Senate, I am somewhat puzzled as to why this subcommittee is now holding hearings "after the fact," so to speak. While we have not examined this issue since 1983, the Energy and Commerce Committee has recently and thoroughly scrutinized the Synthetic Fuels Corporation and the issue of our national energy policy. In fact, the committee reported legislation which, in essence, would have done the same as the House-approved amendment.

While we should not ignore our subcommittee's jurisdictional responsibilities, I believe we neither have the luxury nor the time or resources to expand on issues which have already been decided. Water over the dam is just that. We should move on to other subcommittee issues.

Thank you, Mr. Chairman.

Chairman LAFALCE. Mr. McKinney.

Mr. MCKINNEY. I am delighted to be here, Mr. Chairman, before the Financial Institutions Subcommittee hearings start. I have a very strong feeling that when we passed the synthetic fuels bill, times were different, but I still am eagerly waiting to listen to Mr. McCormick, because I still think the Nation has several problems that we're ignoring.

The first problem is obviously national security, in the very close sense of the military situation.

The second problem which I see on the Banking Committee only too much is national security, on the basis of the outflow of dollars for, in fact, a commodity that is disposed of, oil.

The third issue, it seems to me, is that our foreign policy is continuously in jeopardy as long as we are dependent upon the Arab States. I was very interested to see that the President is now proposing not to sell fighter planes to Saudi Arabia, when it was obvious that the only reason we were going to sell them in the first place is because we need its oil.

I think the fourth thing, coming from the Northeast and having a tremendously large Jewish constituency, is that as long as the United States is a glutton for oil from other sources, the psychological, emotional, and actual support of the State of Israel is always in jeopardy, as many of us saw during the OPEC crisis of the 1970's.

I am delighted you are having these hearings, and I wish I could stay for the whole time.

I do have one thing to say, Mr. Chairman, having been a coauthor with Bill Moorhead and several others of the original, very simple little proposal and having lived through that absolutely abortive conference for 18 months, and having gotten blisters in all the wrong places. There has always been a terrible misconception on the part of the Congress as to the difference between budget outlays and budget authority on the synthetic fuels issue.

I'll just leave it at that, because it's a thicket we can get ourselves into, where we see an appropriation which, essentially, doesn't call for outlays. The Energy Security Act just gives us budget authority over the period of time.

I would say also, Mr. Chairman, it is one of the few debates on the House floor, where I really had to leave, because I think it was the largest tonnage of misinformation being spread across the floor.

I hope the Congress, in some fashion, will come down to an intermediate position and at least keep the capability alive and available.

Chairman LaFalce. Mr. Shumway.

Mr. Shumway. Mr. Chairman, I have a statement by Congressman Michael Strang of Colorado, which I would ask unanimous consent be inserted in the record.

Chairman LaFalce. Without objection, so ordered.

[Mr. Shumway submitted the statement of Hon. Michael L. Strang, Third District—Colorado, for inclusion in the record:]

TESTIMONY
of
THE HONORABLE MICHAEL L. STRANG
Third District - Colorado

Before The
Subcommittee on Economic Stabilization
House Banking Committee

September 11, 1985

MR. CHAIRMAN, Members of the Subcommittee, thank you for this opportunity to present my views about this legislation which proposes to abolish the Synthetic Fuels Corporation [SFC]. I respectfully request that you give very careful, thoughtful consideration of my comments before acting on this legislation in haste. If this legislation were to pass the Subcommittee, the Full Committee and, by some misfortune, should it be sanctioned by the House, it will represent a debilitating blow to our national goal and expectation of energy independence. Ultimately, it would be a major blow to our national security.

I speak from personal knowledge and involvement in oil shale technology as a former State Legislator and private citizen. I live in the middle of the region of Northwest Colorado which is proud to be the home of the most extensive, high quality oil shale reserves in the world. This part of the Third Congressional District has witnessed the ups and downs of the oil shale industry, and the historical Federal participation dating back to World War II. But my interest is not so parochial as at first many of you may believe.

Beyond any question, by any rational thinking person, the over 600 billion barrels of recoverable shale oil locked in the shale formations of Northwestern Colorado, represents the preeminent energy bank available to the United States for long-term energy security. Energy security. That is the driving force behind the actions and commitments of the Congress which, in 1980 on the heels of the most recent, but not the last, oil crisis, established the foundation to make this country energy secure through the development of a domestic synthetic fuels incentive program.

In this moment of emotional, political rhetoric which appears to focus on management concerns, let us not lose sight of the goal to which we committed our Nation in 1980. It took a certain amount of courage for those who were here then to set the course for domestic energy independence and security. Now, some here are using strong-armed tactics, divisive and misleading emotional rhetoric, to destroy what we built. Some may contend this destructive effort takes courage. Well, courage ought to have eyes as well as arms. We must not exploit our immediate preoccupation with the SFC management framework, and close our eyes to the vision of the energy-independent future that we set in motion five years ago.

In 1980 and again last year, the Congress reaffirmed the national interest in developing a synthetic fuels capability. At the close of the 98th Congress, the House, Senate and the Administration struck an agreement to continue a synfuels program, after also deciding to slash the SFC budget by $7.3 billion. The remaining funds were to be used to support just a limited number of synfuel projects which had signed letters-of-intent from the SFC. That was a good-faith, moral commitment by the Federal government. It is an agreement that must be honored.

In reliance on the word of our government, two oil shale projects in Colorado have invested over one-billion dollars of private capital to meet the requirements set forth. Not one cent of taxpayer money has been spent on those projects, and none will be until commercial production begins. Even after price support take effect, there are pay-back provisions which are an integral part of the contracts. To pull the rug out from under these programs now would be foolish, shortsighted and a breech of our word.

Contrary to claims that billions in short-term budget savings would result from abolishing the SFC line of credit established in 1980, the Congressional Budget Office pointed out in a July 9th letter to the House Energy and Commerce Committee that abolishment would cut outlays by only $332 million through 1990. This amounts to about one quarter of one percent of the cumulative budget deficit in that period.

Despite a rocky start, the SFC now is moving forward with new confidence and direction to accomplish the mission which Congress has assigned it. Consider the following points:

** The SFC has a reconstituted Board which is working hard to carry out the mandate of Congress. The new board has been at work for just nine months;

** The Corporation has a more sharply defined direction with a Statement of Objectives and Principles and a revised business plan emphasizing smaller-scale, less-costly projects in its Comprehensive Strategy Report recently sent to the Congress. Several of the projects have been substantially down-sized. In the case of the Union Parachute Creek Oil Shale Project, the proposed contract about ready for signing is one-third the cost of the original letter-of-intent.

MR. CHAIRMAN, let me just briefly recite some facts about the two oil shale projects of which I am most familiar -- the Union Oil Parachute Creek Oil Shale Project and the Catherdral Bluffs (Cb) Oil Shale Project. Both have Letters of Intent signed by the SFC. Union Oil has invested $683 million in its total first phase project, and another $10 million in planning and preparation for Phase Two, for which the Letter of Intent exists. This project is on privately owned lands. The Cb Project, located on one of the two Colorado Federal Prototype Oil Shale Lease Tracts, has invested about $272 million on its facilities. Cb is in the process of investigating a modified retorting technology in discussions with the SFC.

The Union Phase I project, after several technical and mechanical startup problems, assignable to any pioneering technology program, recently completed a most promising sustained run of 6,000 barrels of shale oil. Work is progressing well. Union Oil President Fred Hartly has made a personal commitment to seeing this project through. He is well on his way, at considerable expense, not to the taxpayers, but to his stockholders. They are taking all the risks at this point. Not until production begins does the SFC contract come into play. The product will be refined at the nearby Gary Refinery in Fruita, Colorado and transported to the Air Force as part of its "Project: Rivet Shale," to validate the use of shale oil derived JP-4 aviation fuel in operational aircraft. To stress the importance of this program, the Air Force said in its project summary: "Twice in the past ten years, the Air Force stocks of jet fuel were seriously depleted because of curtailed oil supply to the U.S.....To the extent we fail to develop [a] domestic energy alternate to conventional petroleum, the U.S. will become increasingly reliant on imported oil whose sources cannot be guaranteed."

Union Oil's shale property holdings alone contain 1.6 billion barrels of recoverable shale oil in high-yield deposits. These reserves are sufficient to produce 100,000 barrels per day of shale oil for nearly 45 years. There are a couple billion more barrels in lesser grade oil shale available to the project.

MR. CHAIRMAN, this legislation to abolish the SFC and these crucial national security programs is short-sighted. We must not yield to temporary moves to remedy whatever immediate management problems may exist within the SFC corporate structure. We must not threaten the concept and commitments we have made to our people, to act in a responsible manner and foster a sound synthetic fuels productive capacity to meet the future requirements that will undoubtedly be upon us in the not too distant future. I appeal to you not to close your eyes to the vision we must apply to the future energy security of this Nation and our people.

Thank you.

###

Chairman LaFalce. Our first witness will be Mr. John McCormick of the Environmental Policy Institute. We will put the entire text of your testimony in the record.

STATEMENT OF JOHN L. McCORMICK, ON BEHALF OF THE ENVIRONMENTAL POLICY INSTITUTE

Mr. McCormick. Thank you, Mr. Chairman, members of the committee. It is a pleasure to come before you this morning to discuss the issue which I think is very important, and a lingering issue, which I agree, Congressman McKinney, must be resolved. I hope it is resolved in a way that we don't throw the baby out with the bath water.

Mr. Chairman, our organization, the Environmental Policy Institute, has been involved in the synthetic fuels debate since 1975, when the Senate sent to the House a $6 billion guaranteed loan program for synthetic fuels. That issue was considered by the House when it took up the conference report and defeated that provision of the conference report by 123 votes.

In 1976, it was a $4 billion guaranteed loan program. That was also defeated by the House. Had we approved those $6 billion and $4 billion programs and begun construction in the middle 1970's for synthetic fuels plants, it is very likely we would have a significant outlay of dollars, if those plants went into operation. And though we didn't know then, the price of oil and natural gas dropped as it has in the middle 1980's, we'd see a significant outpouring of dollars in the form of defaulted loans and price supports.

Mr. Chairman, we have learned quite a bit in the last 15 years, in fact, in the last 50 years, regarding the technologies and their improvement in both coal and peat moss, cellular products, et cetera, into usable energy.

Now that we have a Synthetic Fuels Corporation that is trying to force into commercial operation plants whose product pricing exceeds the market price, we've now got to reevaluate whether it was the proper choice to move technologies into the commercial mode, when the private sector wasn't willing to put up its money to commercialize those ventures.

There are some real benefits in the bill, H.R. 935, in that it would switch attention away from commercialization of synthetic fuels towards pure research, and in several of the synthetic fuels technologies, in particular, in the Northern Plains gasifier and the small Texaco gasifier, operated by TVA. I discovered, and I think others are far more aware than I, that one part of the process, the sulfur removal process, which uses something called a Stretford sulfur stripper, is not working. It doesn't work on the Texaco gasifier. It certainly doesn't work on the Northern Plains gasifier.

That North Dakota plant is operating with a waiver that allows 10 times the allowable SO_1 emissions from that plant. We can't have a synthetic fuels industry that is predicated on waivers and is creating air pollution. But we do have the need to resolve the problems of the Stretford sulfur stripper. That is a legitimate need of the Department of Energy and the private sector to wade through that glitch in the stripper process. Either abandon it or come up with something that will remove the sulfur dioxide from a low or medium or pipeline quality gasification plant.

Now it shouldn't take us a decade to do that, nor do we have to abandon the Northern Plains gasifier to do it, but the Synthetic Fuels Corporation doesn't have that project as its mandate. The Department of Energy under H.R. 935 would. So I encourage this committee to take quick action on H.R. 935, and I hope we can get it to the floor this fall.

Whatever the result of the fiscal year 1986 Interior Appropriation, let's at least take the action to deauthorize the Synthetic Fuels Corporation and shift the Nation's attention away from commercialization of synfuels and towards commercialization of pollution control technologies, which would be applied to coal-fired powerplants, because the real energy issue facing us at the present time, Mr. Chairman, is to resolve the air pollution problem affecting the United States and Canada. The clean coal technology reserve is an appropriate action for the Congress to take, and a $500 million appropriation level is a responsible level, as well.

So what I'm saying, Mr. Chairman, is, now is the time to reorganize our priorities on our energy research, shift away from commercialization of synfuels, recognizing the market isn't ready, and shift into commercialization of clean coal technologies, which, when we finally resolve the Air Pollution Program, will be ready.

Now with regard to some of the need to continue Government activity in synthetic fuels research, I mentioned the problem with the Stretford sulfur stripper. I think it is also important to maintain Government involvement in a host of projects, including oil shale, because what we have now in the oil shale industry is technologies whose energy demands may exceed the energy that it creates.

That is not going to be acceptable 15 or 20 years from now, when we find that the water demands in the Southwest are going to put a real dent in the water demands for the synthetic fuels energy. We may find that we are barking up the wrong tree, if we think that somewhere out in the future, we're going to have an oil shale industry to rescue us, in the event that our liquid petroleum reserves are truly scarce.

I have a chart before me, Mr. Chairman, printed by the Energy Information Administration, that has some very interesting numbers regarding our oil imports.

In 1973, our total imports were about 2.6 billion barrels, of which OPEC contributed about one-half. In 1984, the average was down to about 5.3 billion barrels, with OPEC contributing about 2 billion barrels.

I think it is pretty evident, Mr. Chairman, that we have very wisely spread our base of supply where we rely upon imports, and now the growth in our imports from countries that we don't have serious political problems with, and certainly to increase our purchase of Mexican oil, would help that economy. It would cut down on transportation costs, certainly, but it would also spread some of that U.S. capital down to a country whose debt burden is hurting its own potential for economic development.

So frankly, I am not as concerned as others. Perhaps they see it more clearly than I. We aren't in quite the same position as we were in 1973 relative to our dependence on OPEC countries. But I certainly don't dismiss the foreign relations problems that would develop if we have to go back to a greater dependence on OPEC oil.

That is why I say we should continue a Federal Government involvement in research on synthetic fuels, particularly the conversion of high sulfur coal to fuels such as methanol.

Mr. Chairman, maybe I could just end my testimony reading a portion of a letter that then Congressman Tom Corcoran wrote to the Board of the Synthetic Fuels Corporation in 1982. He says:

> In 1984, the Synthetic Fuels Corporation is required to submit to Congress a comprehensive plan for achievement of the Energy Security Act's goals. The Corporation has already learned that attaining the production goals will be impossible as a practical matter. Why not build upon what the Corporation has learned and submit a report to Congress now detailing the type of synthetic fuels program that will work and how much it would cost, given present economic and technological limitations? This would be a much greater service to the synthetic fuels industry and to the public, and to attempt to transform administratively the Energy Security Act's commercial synfuels program into the kind of research and development program that it appears is really needed.

That was in 1982, Mr. Chairman. I don't think it could be any more apropos in 1985.

With that, Mr. Chairman, I am going to conclude my statement.

[Mr. McCormick's prepared statement, on behalf of the Environmental Policy Institute follows:]

FILE COPY

ENVIRONMENTAL POLICY INSTITUTE

TESTIMONY OF JOHN L. McCORMICK
BEFORE THE HOUSE BANKING SUBCOMMITTEE ON
ECONOMIC STABILIZATION
ON THE ROLE OF SYNTHETIC FUELS
SEPTEMBER 11, 1985

* *

Mr. Chairman, and Members of the Subcommittee;

It is a pleasure to appear before you this morning to provide the views of the Environmental Policy Institute on this important matter. The Institute has maintained a continuous interest in the nation's debate on the need for a synthetic fuels industry and the role the federal government should play to encourage its commercialization. During this decade of start-and-stop approach to policy-making, the world has seen some amazing events come to pass. Energy costs have rollercoasted up and then down - closely followed by inflation. Experts gave dire predictions about the availability and price of petroleum, only to find themselves proven wrong at the end of this ten year period. Meanwhile, Iran and Iraq continue to war with each other, developing countries increase their demand for the world's crude oil supplies and Dr. Hubbard's estimates of world oil availability remain, basically, unchallenged.

Amid this decade of great uncertainty, the U.S. Congress has tried to take the nation's energy direction away from relience upon the whims of unstable governments by focusing attention, research and subsidies upon our domestic stockpile of fossil fuel resources. Looking back upon its efforts, over this period, it cannot be faulted for trying to cope with seemingly out of control world energy prices by establishing some home-grown competition to O.P.E.C. Where it veered

218 D Street, S.E., Washington, D.C. 20003 (202) 544-2600

off course however, was the choice it made to lavish federal subsidy dollars upon an industry not much further developed than was the personal computor industry at that time. That the latter became such a phenominal economic success while synfuels withered and died was the real lesson we all should have learned from this expensive experiment. To commercialize, according to Webster's Dictionary means, "To render commercial; to make profitable in a business way.". The establishment and operation of the Synthetic Fuels Corporation may be the antithesis of that definition.

The Institute argued, from the beginning, that the proper role for the federal government is the planning, coordination and funding of serious research projects designed to move an engineering concept up the ladder of development. Where the private sector had little interest, expertise or capital to pursue the research of a technology our government has assumed those responsibilities. Our aerospace program is the best example we have where taxpayer dollars backed an entire program of research to provide our government with the means to explore outer space while holding out the prospect for generating a commercial fleet of space vehicles and satelites. But, that "can do" attitude we applied to our N.A.S.A. program has its limits where the products of technologies we want to force into commerce are subject to the pressures of a world market. In space exploration, there was no competition. In synthetic fuels, competition exists in fuel efficient automobile engines, new oil and gas discoveries and the cheapest energy policy available to the marketplace - energy conservation.

Stacked against the cheaper alternatives beginning to surface during the mid-1970's, synthetic fuels were certain to fail. If the private sector had been shouldering the economic risks of developing, testing and marketing the same synfuels processes the U.S. government has been carrying for the past ten years, the issue would have quietly slipped from sight without a sound. Instead, the SFC has dug the taxpayer deeper into the synfuels spending pit. Fortunately, former O.M.B. Director David Stockman saw the reality of the situation and did all that he could to head off the synfuels raid on the U.S. Treasury. Later, the dilligent pursuit of the facts about the enormous costs and risks facing taxpayers were uncovered by Congressmen Wolpe and Synar during their several years of investigating and exposing abuses of the Corporation. Now, this Committee has the opportunity to do its part in setting the nation back on the course of a rational pursuit of energy security.

What part synthetic fuels will play in this nation's furture energy needs is very much in-doubt because the conditions warranting the expense of hundreds of billions of dollars to provide synfuels substitutes for conventional energy sources is constantly changing. That North America is awash in natural gas is a blessing and a shock at the same time. In 1976, factories in the Northeast were forced to close because gas supplies were being curtailed in order to cope with a sudden shortage. Congress stepped in and legislated a partial solution by enacting the Fuel Use Act. Now, deregulation, conservation and Canadian competition have contributed to low prices, assured supplies through the remainder of the century and sound reasons for reform of the Fuel Use Act. In a world of $2.15 gas, $25 oil and 40 mile/gallon automobiles, there is no economic reason to produce synthetic natural gas or petroleum from shale or coal. But, there is a continuing need for the U.S. government to invest in the research of cheaper, cleaner and more efficient synfuels technologies we can bank for the future. In that respect, Mr. Chairman, the views of the Institute have not changed throughout this ten year debate.

We continue to argue that the U.S. government is seriously wrong in its decision to back away from fossil fuel research in favor of force-feeding an infant technology having nothing but glowing promises to offer. The real work in this nation's energy security remains a low priority and poorly funded. Energy conservation is not the solution to dwindling energy reserves, high costs and air pollution control. It is, however, the cheapest means we have to deal with all three lingering energy related problems. Energy conservation is a cornerstone of economic stability. Synthetic fuels in today's America is tantamount to burning our household furniture to keep ourselves warm.

Another aspect of energy research we must focus upon - and quickly - is coal combustion pollution control. For the remainder of the century and into the next, coal will remain the fuel of choice by the U.S. electric power industry. That presents the U.S. with both a blessing and a curse. On the one hand, there is security in the tremendous abundance of domestic coal reserves; on the other, atmospheric pollution from burning coal is a serious and very expensive problem we must confront and resolve. Western Europe's forests, monuments and lakes have been damaged and destroyed by the acid-forming pollution since the post-World War I increase of industrialization in those heavily populated countries. Now, U.S. scientists are warning that our lakes and forests may be threatened by the same pollutants. Canada continues to pressure the U.S. into controlling air pollution blowing across our borders. As each new piece of scientific understanding about the chemical process of acid rain formation and its impacts is recorded, the inevitable becomes more clear. There will be a national air pollution reduction program created either by the Congress or the Courts in this decade. Now is the time to prepare to meet the needs of industry by providing the pollution control research dollars that the polluting industries will cost share but not underwrite entirely. The Clean Coal Technology Reserve funded by the House, in the FY86 Interior Appropriation is an essential research program which deserves the support of the Administration. It is more than an effort to prop up the sagging hopes of the nation's high sulfur coal industry. It is the key to the solution of several problems plaguing our environment and the electric utility industry.

By shifting our attention from the uneconomic and failed efforts to commercialize a synfuels industry to the careful monitoring and funding of a cost-shared coal pollution reduction research program, this Congress can make a very important mid-course correction in its honest effort to cope with a constantly moving target. Reverse your priorities by relegating synfuels back to the research mode where current economic conditions warrant and move clean coal technologies up to the commercialization phase because they will be the means by which the U.S. answers the acid rain challenge while holding the line on electric utility rates in the Midwest.

By no means is this reorganization an admittal of defeat or a dismantlement of our synfuels program. It is simply a rational business decision which allows us to concentrate on the real work at hand. And, there is much that must be done to design and perfect the more promising synfuels technologies we may have to turn to if the energy growth forecasters are as wrong as they have been during the past ten years. E.P.I. encourages this Committee to act upon HR 935 quickly and get on with the synfuels research program incorporated in that legislation.

There are several important synfuels research projects that should be undertaken by DOE as soon as it establishes the new program created by HR 935. Among them is the investigation of the failure of the Stretford sulfur stripper equipment used by both the Great Plains Gasifier plant and TVA's Texaco gasifier at its Muscle Shoals Alabama plant. Neither project has been successful in getting that particular sulfur dioxide control equipment to work properly. In fact, the Great Plains plant was operating under a North Dakota varience waiving restrictions on the amount of sulfur dioxide emissions allowed. The system's failure apparently means the plant can only operate if allowed to emit ten times more pollution than the State's clean air laws allow. That condition cannot be tolerated any longer and the State would be wise not to renew that waiver unless a compliance timetable -with the force of law- accompanies the waiver request. In any event, however, the waiver should only apply to plant operation related to researching the solution to the failure of the Stretford system to operate properly. The fate of synthetic fuels commercialization can not hinge upon the plant's being granted waivers of environmental pollution control laws.

T.V.A.'s interest in redesigning its Muscle Shoals gasifier to produce methanol (15%) and electricity with the remainder of the gas (85%) may represent another legitimate research project the DOE might consider. There are other examples as well, but the main point is there are important research needs in finding cheaper and more efficient technologies from which to choose if future energy demands cannot be satisfied by conventional fuels.

With regard to the fate of the Great Plains Gasifier, the federal government must proceed cautiously and not be rushed into a hasty and costly resolution of the default of that project. The Institute is not passing judgement on the decision to being constructing the project, continue to fund it while energy costs were dropping, nor the termination of federal financial support when it became clear that the private sector would not support its operation. The fact is that the taxpayer may now be the legal owner and the DOE must provide a sensible plan for the disposition of this newly acquired asset. That the public controls the plant's destiny is not a bad outcome if its future is planned such that the Treasury eventually collects all the capital it invested in the construction phase and the nation adds to its understanding of synfuels processes.

The North Dakota plant could provide numerous individual synfuels research with inexpensive testing facilities since much of the equipment is already installed. Pumps, compressors, filter systems, coal crushing equipment, storage facilities and monitoring equipment - basic components of a coal gasification research facility - could be dedicated to some of the research efforts (i.e., solving the inefficiencies of the Stretford SO_2 removal equipment).

That plant may also offer the potential for making a totally different product - electricity. By adding syngas cleanup processes to remove fine particles from the gas stream and firing that medium btu gas in a turbine and running the waste heat through a cogenerator, it might be possible to generate an abundance of clean and cheap electricity. This configuration would copy the concept of the Coolwater plant operating in Daggett, Cal., except on a much larger scale. Given the U.S. military's extensive operations in the Northern Great Plains and its huge demand for electric power to operate those facilities, perhaps the Defense Department could contract for the purchase of the electricity a modified Great Plains plant might produce. The important message to the DOE, however, is to think carefully about a contingency plan which provides maximum benefits to the taxpayer and for the nation's energy security.

Mr. Chairman, in concluding this testimony, let me offer the thoughts of -then Representative Tom Corcoran - when, as a member of the 98th Congress, he wrote in an open letter to the members of the Board of the SFC, the following;

> "In 1984, the SFC is required to submit to Congress a comprehensive plan for achievement of the Energy Security Act's goals. The Corporation has already learned that attaining the production goals will be impossible as a practical matter. Why not build upon what the Corporation has learned and submit a report to Congress now detailing the type of synthetic fuel program that will work and how much it would cost, given present economic and technological limitations. This would be a much greater service to the synthetic fuels industry and to the public than to attempt to transform administratively the Energy Security Act's commercial synfuels program into the kind of research and development program it appears is really needed."

Chairman LaFalce. I am going to ask that same question of Mr. Corcoran, and we will next hear from Mr. Koleda of the Council on Synthetic Fuels.

STATEMENT OF MICHAEL S. KOLEDA, PRESIDENT, COUNCIL ON SYNTHETIC FUELS

Mr. Koleda. Thank you, Mr. Chairman. I appreciate the opportunity to spend a few moments with you talking about how industry views this program and, if I may, making a couple of comments on some of the statements that have been made here this morning.

As you know, the price tag on the original synfuels program, $88 billion, is something of a red herring because today we are talking about a program that has approximately $7.9 billion available to it, and that is all. Indeed, some of that is going to be recaptured under the provisions of the fiscal year 1985 continuing resolution.

We are really talking about a $7.9 billion program, nothing larger, and as far as the production goals that Mr. Corcoran may have been referring to back in 1982, those production goals were essentially cast aside in last year's continuing resolution, where the Corporation was directed to ignore the production goals in moving ahead.

We now have a synthetic fuels program which is going to be supporting the smallest projects in size that it can but do a very important thing, and that is to demonstrate at commercial scale the key processes and equipment that would be needed if one were to build a commercial scale facility. The idea being to find out how these projects would work at commercial scales using the technologies that are most promising at the moment. That is the purpose of the program today.

Let me make a couple of points in my informal remarks. You have the written statement.

The fact is, as Henry Schuler will undoubtedly point out in his testimony, the United States is no longer an oil rich Nation. We don't replace in new finds each year the oil that we consume from our domestic reserves. Those are declining, and there does not appear to be any great hope on this point in the future.

We have plenty of coal and we have plenty of shale. The problem is, of course, that shale is a rock. It is totally useless as an energy resource until we learn how to convert it into oil. That is the purpose of the synthetic fuel technology with respect to shale.

As for coal—and as a former Director of the President's Commission on Coal, I can tell you that resource is the fuel of last resort to any fuel user, and they will tell you we may have more of it than we have got anything else, and that you hear a lot about.

But the fact is that left alone and burned the way it exists it is a relatively dirty fuel, it is hard to handle. There are a lot of problems with it.

But on the other hand, it is a resource in great quantity, and what we have got to learn to do is to convert coal into a clean burning fuel. Right now we are burning high sulfur coal in utilities with scrubbers, and it is a mess. They don't work particularly well. The utilities are not pleased with them.

There is a lot of excitement in the utility industry in coal gasification. The Cool Water project in California—incidentally, a project supported by the Synthetic Fuels Corporation with a price guarantee of $120 million—is a success. It works, and it has caused quite a lot of excitement in the utility industry.

Vepco and Pepco, two utilities in the Washington area, are planning facilities of that kind in the future. That project is a success for the SFC. The SFC assistance pushed that technology over the hump. Utilities are now considering similar projects as a result.

It is true, as Mr. McCormick pointed out, that we are importing less oil, and it is true that we are importing quite a bit less from OPEC and the Persian Gulf at the moment.

The fact is, however, that those other suppliers are pretty much operating at peak at the moment, and most experts will tell you this will not continue, that the bulk of the world's oil is in the Middle East.

The Department of Energy's figures project imports within the decade reaching back up to the 50 percent level. I am told by people in industry who look at this pretty carefully that imported oil is going to come increasingly from the Persian Gulf because that is where the world's oil is.

So I am of the view, as my member companies tend to be, that the country is headed progressively and inexorably down the road toward more oil imports because that is the cheapest way for the oil industry to provide products in this country. That oil increasingly will come from the Persian Gulf.

Now, a strategic petroleum reserve is an excellent idea and a rapid deployment force or central command is an excellent idea, but in my view each of those options is a way to respond to an acute problem, either an embargo, an attempt to drive up oil prices beyond what markets will sustain, or a disruption in the Middle East that will allow you to trigger such acute reaction mechanisms.

But these programs do not deal with the chronic threat that I am talking about, which is a slow drift back toward dependence upon an area of the world highly unstable and, frankly, in the Soviet Union's backyard, not in our backyard.

If we find ourselves back in that situation over the next decade or two, it will have a severe impact on the flexibility of our foreign policy in that region. No question about it.

There are two prices that we need to keep in mind. One is the price of conventional oil. The other is the price of synthetic oil.

The price of conventional oil is totally outside the control of the United States of America. It is determined on world markets. We accept that price. There is no alternative.

However, the price of synthetics, oil made from coal or shale, tar sands, and heavy oils, is a price within the control of the United States.

The highest price for synthetic fuels, I submit, is the price today, the cost to produce them with the initial pioneer plants, the ones where we don't know whether the technology is going to work or how well it is going to work or what kinds of backups, changes, adjustments are going to have to be made. It is the base from which we can make technological improvements in processes and related equipment to reduce costs.

If we act now with synthetic fuels, paying the subsidy that is required today, we can cap the price of the synfuels alternative and begin to lower it.

We are not talking, I think, about an enormous sum. The amount of obligational authority that the SFC now has is less than 10 percent of the maximum amount talked about in 1980. It is well below half of what was authorized for the first phase program 5 years ago.

But it is an ample amount of money to put into place for key technologies and the major resources, the smallest scale projects that will prove the technologies at commercial scale.

We are not talking about commercializing an industry. Synthetic fuels are too expensive today. They can't stand on their own in the market. But we can lock in the maximum price of synfuels and begin to lower it.

If we choose not to pay the subsidy now to do that, I can predict what will happen. We can try again when we want to a few decades out, but synfuels will be that much more expensive at that time because inflation will have driven the costs up. For any company that has to look at undertaking such a project at that time, the decision will be this:

Why commit that kind of capital to produce a fuel, the cost of which we aren't going to be able to project that closely except that we know that it is higher than the cost of the conventional imported item? Why should we do that? When it won't be online for 10 years, why should we do it? We can import oil. As a result, by delaying now we will be in exactly the same bind in the future we are in now except that the cost of conventional fuel will be that much higher.

If by acting now on synfuels we could cut the cost of world oil, that savings is on every barrel of oil sold on the world market. The value to the United States is enormous.

Despite the value to society, a risk averse company will not go ahead on its own with synfuels because it has an alternative in imported oil. A risk averse country, on the other hand, ought to go ahead.

We have nearly in place a U.S. synthetic fuel program. This subcommittee was instrumental in getting that program started when you first visited this problem 5 years ago. You were building then; you are now asked to dismantle.

I suggest that that program stay in place. The money is available. It is far less than we originally had in mind. The projects are ready. Private industry has put substantial amounts of money into the project proposals before the SFC.

The Union shale project in Colorado, I might just mention, is a project that is not working in one critical respect. The retort itself works. They can make oil from shale. They are having difficulty handling the spent shale. There is a new technology that they would like to substitute for the one they now have. That is what they are now working to correct.

But every dollar of that project is private money. They have a price guarantee, but the price guarantee doesn't trigger until the project is producing oil.

That company is out there on its own. This talk about companies not wanting to put their own money on the line, and how Government money is flowing out in droves flys in the face of the facts. The SFC once was talked about in $88 billion terms but has made less than three-quarters of $1 billion in commitments. The actual dollar flow has been nil from that program. Not so for Union Oil Co. and for every other private company that has stepped up to the line with proposals in response to solicitation after solicitation at the direction of this Government.

Now, there are proposals before the SFC. Good proposals that are ready. The program is in place. It is funded. It is time for the SFC to act on these proposals.

Thank you very much.

[The prepared statement of Mr. Koleda with additional statement follows:]

Council on Synthetic Fuels

STATEMENT

OF

MICHAEL S. KOLEDA
PRESIDENT

COUNCIL ON SYNTHETIC FUELS

BEFORE

SUBCOMMITTEE ON ECONOMIC STABILIZATION
COMMITTEE ON BANKING, FINANCE AND URBAN AFFAIRS
U.S. HOUSE OF REPRESENTATIVES

SEPTEMBER 11, 1985

1301 Pennsylvania Avenue, N.W. • Suite 325 • Washington, D.C. 20004 • (202) 347-7069

Mr. Chairman, thank you for the opportunity to present my views to this subcommittee as you consider the contribution of synthetic fuels to our nation's energy supply.

This subcommittee had a historic role to play in creating the Energy Security Act of 1980. That was a time when the supply and price of oil was a subject of great concern in government, in industry, and in every community across the land. Today, this subcommittee is, once again, in the limelight on the subject of synthetic fuels. In 1979 you were building, today you are being asked to consider dismantling. The role of the subcommittee today is no less historic. Actions of government in the absence of crisis conditions are no less important in their implications than those taken in the midst of widespread fear, uncertainty and calls for action. Indeed, it can be argued that our expectations for the quality of decisions taken in the present climate of relative calm in energy markets should exceed that of actions taken in times of energy panic as characterized the 1970s.

Toward this end, I urge the subcommittee to separate three aspects of the synthetic fuels policy questions before you.

First, there is the fundamental question of whether it is wise for public policy to encourage the development of commercial-scale synthetic fuels production capability in the United States at a pace faster than dictated by the energy market.

Second, there is the question of whether the Energy Security Act of 1980, as amended in 1984, is good legislation. This would include consideration of whether the U. S. Synthetic Fuels Corporation is a desirable mechanism for hastening the development of the synthetic fuels industry, given the alternatives.

Third, there are a series of questions relating to implementation of the Energy Security Act since 1980.

With respect to the fundamental policy question, we know that it is possible to produce a wide range of liquid and gaseous hydrocarbons from solid fossil fuels, principally coal and oil shale, tar sands, and heavy oils. The technologies involved are of significance to every sector of the American economy presently dependent on petroleum and natural gas. They are of significance to electric utilities in need of environmentally acceptable alternatives to the direct combustion of coal -- alternatives that do not involve a return to reliance on petroleum and natural gas.

There is substantial industry interest, both in the United States and worldwide, in these so-called "synthetic fuel" technologies. That interest includes the production of petroleum substitutes from oil shale, coal, tar sands and heavy oils; the manufacture of pipeline quality gas from lignite and coal; the manufacture of a range of chemical feedstocks from coal; and the production of electricity in highly efficient and environmentally attractive projects made possible through advances by a number of companies in the field of coal gasification. These technologies offer the promise of opening energy resources that dwarf U.S. reserves of petroleum and natural gas. Considerable research and development work is underway in the private sector, but, it is generally acknowledged that the technical and market risks and, consequently, the potential costs of pioneer commercial scale facilities are too high for industry to undertake in the absence of shared risk with government. In the short run, industry has alternatives to synthetics that appear cheaper. With respect to the generation of electricity, the alternatives include delay in the construction of new capacity, a return to reliance on oil fired generation, and the continued direct combustion of high sulfur coal with existing control technology. In the area of petroleum supply, the alternative to synthetic fuels development appears to be increased imports of conventional petroleum and petroleum products.

The United States, in 1984, imported nearly 2 billion barrels of crude oil and petroleum products or 35% of domestic consumption at a cost of $54 billion. Oil imports were by far the single largest component of our trade deficit and better than four times the size of the U.S. trade deficit with Japan. Base case estimates by the U.S. Department of Energy project oil imports to rise to 39% of total U.S. consumption by 1990 and 48% a decade from now. Middle Eastern fields contain 57% of the world's proved oil reserves and two-thirds of proved reserves outside China and the Soviet Union. Experts in industry and government agree that oil production from non-OPEC nations is expected to decline in the years ahead. For these reasons, the United States appears headed toward increased reliance on imported oil from unstable countries in the Persian Gulf region.

The likely drift toward energy and economic dependence on the Persian Gulf oil fields can be altered if the United States moves steadily to improve its capability to produce liquid and liquid replacing fuels and chemicals from ample domestic supplies of solid fossil fuels.

At present, the projected cost of synthetic fuels exceeds that of conventional oil. The market responds by increasing imports rather than building synthetic fuels plants. Critics of synthetic fuels subsidies argue against manufacturing expensive oil when the natural product is cheap and abundant. But delay doesn't bring down the cost of synthetic fuels. Nor does it improve the environmental performance of these technologies. Failing to move beyond the first hurdle now, simply assures that the 5-7 year lead time needed to design and construct the pioneer plants to establish the ceiling cost for synfuels is carried forward to the next time of energy crisis. In the meantime, the cost of pioneer plants will increase with general inflation. Synthetic fuels will always appear uneconomic without practical experience at commercial scale as a guide to cost and technical performance. The key to lowering synfuels costs is to build the first round of pioneer plants now, not to postpone them.

Unlike the price of oil which is determined in a world market, subject to political manipulation, and destined to rise steadily or in erratic jumps in the decades ahead, the cost of producing synthetic fuels can be capped today and lowered in the future through actions wholly within the control of the United States. The first synthetic fuels plant is the most expensive. Once built, improvements will be made, knowledge gained, and costs brought down. Once the initial plants are put in place as "commercial-scale laboratories" for further improvements, the nation is truly on the road toward an economic and secure alternative to imported conventional petroleum.

The policy choice is to begin paying the subsidy now in the form of assistance to synfuels development, or to pay later in the form of higher energy prices and greater dependence on the Persian Gulf.

This subcommittee is now struggling with the future of the SFC — an agency with a troubled history and more than its share of mismanagement charges and lack of leadership. Serious as these problems are, for the most part, they have been corrected; and they are not and must not be allowed to delay U.S. synthetic fuels development.

As for the Energy Security Act, it is generally thought to be a good piece of legislation, although originally somewhat unrealistic in its objectives. This largely was corrected in the FY 1985 Continuing Resolution (H.J. Res 648)by allowing the SFC Board to ignore the ESA production goals in making project awards. Today, it is knowledge, not oil, that the SFC program seeks to produce. The "mega projects" of the early days of the agency have been replaced by small projects just large enough to prove key processes and equipment at commercial scale.

The concept of the Synthetic Fuels Corporation was considered at the time the ESA was passed to be an improvement over the experience that industry had had with DOE programs prior to 1980. At that time, there was considerable unhappiness in industry with what might be characterized as a tendency by DOE to "micromanage" industry. By contrast, the SFC concept would leave key decision-making in project development matters to the private sector. This is viewed very positively in industry.

A fair assessment of the performance of the SFC since 1980 must recognize that the agency was dealt a series of body blows on the economic and energy fronts almost immediately on the heels of its creation. The recession of the early 1980s -- the deepest since the Great Depression — combined with high real interest rates led much of American industry to cut capital commitments worldwide. This was especially true in the energy industry where price-induced conservation and depressed demand created glut conditions. As a result, success for synthetic fuels could not be guaranteed by steadily rising oil prices as widely had been anticipated. Rather, the sensitive task of developing very large scale pioneer technologies with government assistance in the energy sector of the American economy — a sector at once poorly understood by the public and itself suspicious of government involvement — required and continues to require the support of the Administration and leadership and direction of the highest quality. The history in this regard is well known to the subcommittee.

Today, in response to solicitation after solicitation, industry sponsors have invested substantial amounts of money in developing candidate projects. Despite the oft-repeated charge that the SFC is funneling money out to industry, only two awards totalling $740 million have been made in the five year's of the agency's existence. Today, the SFC is considering projects that have been in one or another stage of consideration for months and in some cases years. Among these projects is a core group that, if assisted, would provide a basis on which to begin to build a domestic synthetic fuels capability. The SFC has approximately $7.9 billion available to accomplish this task. This is well under half of what Congress set aside for the first phase of the effort and less than 10% of the total originally contemplated for the program. It appears that a substantial portion of this will be "recaptured" under provisions of the FY 1985 Continuing Resolution.

Steadily declining U.S. oil reserves and DOE projections that we will be dependent on imports for half our oil consumption within a decade, argue for acting now to begin building pioneer synfuels plants in the most promising technologies and resource bases. The necessary law is in place. Sufficient funding exists to accomplish the task. What remains is the ability to keep our focus and the capability to act.

Thank you.

Council on Synthetic Fuels

September 18, 1985

The Honorable John J. LaFalce
Chairman, Subcommittee on Economic
  Stabilization
Committee on Banking, Finance and
  Urban Affairs
U.S. House of Representatives
2129 Rayburn House Office Building
Washington, D.C. 20515

Dear Congressman LaFalce:

I am enclosing an additional statement to my testimony of September 11, 1985 before the Subcommittee on Economic Stabilization which I would like included in the hearing record.

Sincerely,

Michael S. Koleda
President

Enclosure

cc: Martin Gruenberg
     Professional Staff Member

1301 Pennsylvania Avenue NW • Suite 325 • Washington DC 20004 • (202) 347-7000

BEST COPY AVAILABLE

Council on Synthetic Fuels

ADDITIONAL STATEMENT
OF

MICHAEL S. KOLEDA
PRESIDENT
COUNCIL ON SYNTHETIC FUELS

FOR

SUBCOMMITTEE ON ECONOMIC STABILIZATION
COMMITTEE ON BANKING, FINANCE AND URBAN AFFAIRS
U.S. HOUSE OF REPRESENTATIVES

One of the most misleading criticisms aimed at synthetic fuels is that the cost per barrel is enormously high and not likely to be competitive with other fuels for decades. Costs as high as $100 per barrel have been bandied about for shale oil, and have been mentioned in this hearing.

A starting point for understanding and estimating costs of synthetic fuels is the recognition that there is no meaningful, absolute, abstract cost. Cost must be associated with specific facilities and will be a function of many variables, including scale, years of operational learning, success of the technology and forms of financing. If a single train pioneer plant is built without economies of scale and with high-risk premiums, there could well be costs as high as $100 per barrel. However, commercial-scale plants building upon the experience of the pioneer plants would produce at significantly lower costs.

In its Comprehensive Strategy Report, the U.S. Synthetic Fuels Corporation points out that second and third-generation plants, incorporating (1) learning from pioneer plant operations, (2) economies of scale, and (3) financing based on lower risks of follow-on plants, are likely to have levelized costs in the ranges of $45-$50 per barrel and $35-$40 per barrel (in 1985 dollars), respectively.

1501 Pennsylvania Avenue, N.W. • Suite [illegible] • Washington, D.C. 20004 • (202) [illegible]

Chairman LaFalce. I am pleased that Mr. Schuler is now able to join us. He holds the Dewey F. Bartlett Chair in Energy Security Studies at the Center for Strategic and International Studies at Georgetown University.

Professor Schuler, we now look forward to your testimony.

STATEMENT OF G. HENRY M. SCHULER, DEWEY F. BARTLETT CHAIR IN ENERGY SECURITY STUDIES, CENTER FOR STRATEGIC AND INTERNATIONAL STUDIES, GEORGETOWN UNIVERSITY

Mr. Schuler. Thank you, Mr. Chairman. I apologize for being late, but I had the wrong time in my pocket diary.

Chairman LaFalce. We refer to them as our idiot cards.

Mr. Schuler. So did I. I was definitely the idiot putting it down wrong. But it is a privilege to be here to testify.

As you pointed out, I hold the Dewey F. Bartlett Chair in Energy Security Studies at Georgetown University's Center for Strategic and International Studies. So the focus of my concern is energy security.

It does not escape my attention that the Synthetic Fuels Corporation was established by a piece of legislation that you all passed that is called the Energy Security Act of 1979, and this was in fact the thrust of the legislation. It was part of a response on the part of Congress to findings by two separate administrations, one Democratic, one Republican, during the 1970's, that the Nation's national security was threatened by oil imports.

The first of those was in 1975 by Secretary Simon, the second in 1979 by Secretary Blumenthal, but they acted with the input of just about every Cabinet Department—the Federal Reserve Board, the Council on Economic Advisers, the CIA, the whole range of inputs in this town—and it is because national security is defined in the Trade Expansion Act of 1962, section 232, in the broadest possible terms.

And while there is, of course, a military dimension and there is a strategic dimension, the comparison between the Soviet Union and the United States in its energy balance, there is also an economic dimension. Since this is the Committee on Banking, I will limit my discussion to those economic components of the national security threat posed by oil imports. They fall into two categories.

The first is those economic threats that arise when oil supplies are interrupted. The second is those burdens and threats that are posed when oil supplies are available.

Turning first to the question of oil supply interruption, there is a good deal of complacency now that there isn't a potential threat of oil supply interruption out there. I think this complacency is entirely misplaced.

As the Office of Technology Assessment pointed out in a study they did last year, it is not simply the period of interruption that causes the enormous impact upon all of the macroeconomic indicators—unemployment, economic growth, inflation, the whole range of things that you all watch so closely—it is not just during the interruption that those are impacted adversely, but because there is a price increase that goes along with the supply interruption it has a longlasting impact and continues well after the actual interruption has been eliminated.

The result, as the OTA put it, is economically the same. In economic terms, it's a reduction of oil consumption in this country, with all the impact that it has on the economy.

Now, I think that we can certainly envisage a supply interruption that will have a very significant price escalation. And while we seem on the surface to be better off than we were during the 1970's, I suggest that it doesn't really stand the test of comparison.

In fact, much is made of the fact that there are perhaps 10–12 million barrels a day of unutilized oil production capacity around the world. Accepting that this is true, and it may or may not be—we won't know until we test it—but, obviously, countries that are in difficult economic circumstances don't spend their hard currency on maintaining capacity that they can't utilize.

So, necessarily, there is an atrophying of the production capacity. But, even assuming that there are 10–12 million barrels a day of unutilized capacity out there, we have to notice where it is. It's not in the North Sea; it's not in Canada; it's not in the United States; it's not even in the Soviet Union.

Ninety-five percent of the unutilized capacity that exists is in the OPEC countries, and the other 5 percent is in countries that have collaborated with OPEC and been better members of OPEC than most OPEC members in recent years. That includes Mexico, which probably doesn't have more than 100,000 barrels a day of unutilized capacity.

It includes Brunei and Malaysia. So there is simply no unutilized capacity outside of OPEC and its collaborators.

In addition, 80 percent of the unutilized capacity is in the Middle East and North Africa, with all that that suggests in terms of the kinds of political conflicts that have arisen in the past.

So that while there is all this capacity out there, there is no certainty that it will be made available at such times as prices start to rise.

In addition, we are told that the strategic petroleum reserve, 487 million barrels, will be utilized to dampen price escalation. Whether or not it is so utilized remains to be seen. It's a very difficult decision to call. As the prices are starting to go up, do you release it now when it's a 50-cent increase or a dollar increase? A month later, you can look back and say: "We should have stopped it before it got out of hand."

But you don't know when it's getting out of hand, as time goes along. But, even if the administration has the ability to choose precisely the right moment to release that oil, we need to recognize that, while we have built up Government stocks, private stocks have been run down at a commensurate rate; so that the net inventory, public and private at this point, is no better than it was at the time of the second oil shock.

At that time, it was viewed as inadequate and the result was that prices ran away as by panic, so it seems to me, that there is neither inventory response nor a shut-in capacity response and we don't have all the easy fat that was in the system in the 1970's. We were profligate in our petroleum use in the 1970's.

So, when an emergency came along, there was a good deal of voluntary curtailment, and there was mandatory curtailment as well. Now, that fat has been removed from the system, so it's not as easy to do it. And the voluntary measures will be harder to come by. And the Congress and the administration have eschewed mandatory measures. I think it's a good idea that they have done so. We're just not up for those at this point in time.

So I think that we could see in a supply interruption scenario an escalation of price that nobody is ready to countenance at this time.

Moving to the next component, which is, even without an interruption on a day-to-day basis and when oil is available to us, it represents a very significant economic burden on this country. We're very much worried about the trade deficit right now. And while everybody is focusing on common market steel and Japanese cars and Brazilian shoes, those represent an infinitesimal portion of the trade deficit compared to petroleum.

Last year, we spent $59.2 billion on oil imports and an additional $5 billion on Canadian gas and electricity imports for $64 billion of burden on our trade balance. If you look at the next largest imbalance in category, it's in transportation equipment, which includes automobiles. That trade imbalance, last year, amounted to $22 billion. So the oil imbalance is 2½ times as large as the imbalance for automobiles.

The next was, I think, primary metals, the steel that we worry about. But that was, again, an insignificant portion. So was apparel, an insignificant portion. We are not focusing on it any longer.

But oil is the largest component of our trade deficit. And if you look at how we're going to overcome that trade deficit, it's hoped that the decline of the dollar will enhance our sales of agricultural commodities, for example.

But, in 1981, at the peak level that our agricultural exports ever were, they would have only accounted for 75 percent of our oil import costs last year.

So you can see that these oil imports need to be reduced through whatever measures we can take in this country.

Another economic problem that's bothering the Congress and all of us today is the problem of the budget deficit. Now, there are a lot of contributors, obviously, to that. The Defense budget's got a big focus up here on the Hill. The Pentagon is reluctant to attribute particular forces and particular budget outlays to any particular mission; however, those outside of government, who have attempted to quantify, have estimated that the Defense budget for fiscal year 1985 contained $47 billion, which was designed to project U.S. power into the Persian Gulf region. And that, over 10 years, some $723 billion will be spent on preparing to fight a war to protect Middle Eastern oil supplies.

I suggest to you that this is another hidden component of the cost of oil. And when we talk about the cost of synthetic fuels, would that there were some way to reflect the cost, these external costs, like the $47 billion spent on the Central Command and projecting power into the Middle East. It would make synthetic fuel prices look a great deal more in balance if you could internalize all these external costs that aren't reflected in crude oil prices today.

So we have the balance of trade deficit. We have the budgetary deficit. We have the whole international financial crisis, which swings on what happens to oil prices. If they go one way, they favor importers of oil. If they go another way, they hurt exporters of oil. So all of this has an oil dimension to it.

We have this huge overhang of petrodollars out there and it remains huge despite the relative straightened circumstances of OPEC. They still have enormous investments and there are enormous quantities of petrodollars out there that can swing back and forth, causing the kinds of concerns Chairman Volcker has of a sudden change of attitude, an outlook of the dollar that causes a sudden collapse in the dollar value.

All of these have a strong oil link. Therefore, I suggest to you that, while the synthetics fuels industry and the Synthetics Fuels Corporation are not going to eliminate these problems, they're surely a step in the right direction. For 85 years, to my knowledge, we've been bragging about all that oil shale we've got out there, and saying that we are the Saudi Arabia of coal. But, unless we can find some way to utilize that and demonstrate it, or demonstrate that we're never going to be able to utilize it, we're lacking the information that we need to make the right calculation with respect to our national security.

Thank you.

[The prepared statement of Mr. Schuler follows:]

House Committee on Banking, Finance and Urban Affairs
Subcommittee on Economic Stabilization

Hearings on

The Role of Synthetic Fuels in
Promoting Economic Stability

Prepared Testimony by

G. Henry M. Schuler
Chair in Energy Security Studies
CSIS/Georgetown University
1800 K Street, N.W.
Washington, D.C. 20006
(202) 887-0200

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My name is G. Henry M. Schuler. I hold the Dewey F. Bartlett Chair in Energy Security at Georgetown University's Center for Strategic and International Studies. The Center does not adopt corporate positions so I am appearing in my personal capacity at the invitation of this subcommittee.

The focus of my work is the link between energy and national security; however, I assess the Nation's security in the extremely broad terms which Congress wrote into Section 232 of the Trade Expansion Act of 1962:

> "For the purposes of this section "232 of the Trade Expansion Act" the Secretary and the President shall, in the light of the requirements of national security and without excluding other relevant factors, give consideration to domestic production needed for projected national defense requirements, the capacity of domestic industries to meet such requirements, existing and anticipated availabilities of the human resources, products, raw materials, and other supplies and services essential to the national defense, the requirements of growth of such industries and such supplies and services including the investment, exploration, and development necessary to assure such growth, and the importation of goods in terms of their quantities, availabilities, character, and use of those affect such industries and the capacity of the United States to meet national security requirements. In the administration of this section, the Secretary and the President shall further recognize the close relation of the economic welfare of the

Nation to our national security...."

The availability of adequate, secure and competitively priced energy supplies is, of course, vital to our national defense capability; however, the role of energy in overall national security goes well beyond a narrow definition of the strictly military dimension. I am, therefore, especially heartened that this Subcommittee on Economic Stabilization still recognizes the threat posed by energy vulnerability and still seeks ways to reduce that vulnerability.

During the past ten years, two different Administrations - 1 Democratic and 1 Republican - have conducted wide-ranging formal investigations of the threat posed to national security by oil imports. On both occasions - 1975 and 1979 - it was determined that the threat was so great as to require urgent efforts to reduce oil imports.

In response to those findings, Coingress took a number of steps to encourage development of alternative domestic energy supplies. Those steps included the appropriately-named Energy Security Act of 1979 which created the Synthetic fuels Corporation. That organization was charged with supporting the development - or at least demonstration - of an industry which could convert our vast resources of oil shale, coal and tar sands into usable fuels.

Now, just six years later, the House has before it a measure calling for abolition of the Corporation and elimination of the deomonstration program. Before succumbing to such fickleness and faint-heartedness, sound law-making requires careful examination of the current state of our energy security to determine whether there is continuing justification for efforts to encourage synthetic fuel development.

That reexamination should include the following considerations.

First, a current assessment of the burdens or vulnerabilities imposed upon he consumers of oil imports, including

- The military burden
- The strategic burden
- The foreign policy burden
- The burden created by a potential supply interruption, and
- The balance of payments burden.

Second, a reassessment of the risks of threats presently hanging over the producers of oil exports, including

- The risk posed by regional wars
- The risk of terrorism and sabotage
- The risk of revolution or coup d'etat
- The risk posed by divergent political and economic interests, and
- The risk of interdiction or seizure in a general war.

Finally, a reexamination of the availability of alternatives or protective measures, including

- Unused production capacity
- Strategic petroleum reserves
- Emergency conservation measures

- Fuel switching
- Reducing dependence upon Middle Eastern oil, and
- Enhancing the security of Middle Eastern exports.

Although all of these considerations are critically important, time constraints force me to limit this morning's discussion to those of immediate concern to this committee because they impact upon the stability of the U.S. economy.

Treasury Secretaries Simon and Blumenthal correctly emphasized that there are 2 distinct types of economic burden imposed by reliance upon oil imports:

- The most widely recognized and easily quantified burden is that posed by potential supply disruptions. Although memories are short, most analysis of the first and second oil shocks emphasized the impact of reduced availability and higher prices upon the key macroeconomic variables: gross national product, unemployment, inflation, private investment and expenditures for personal consumption.
- There are, in addition, the burdens posed by massive payment outflows, defense expenditures, international banking problems and currency volatility associated with obtaining foreign oil when there is no supply disruption. Although these tend to be ignored because they do not arise out of an instant crisis, they are probably the most pernicious over the long term.

Turning first to the burden of a potential supply disruption, I want to emphasize that I have little confidence in the currently fashionable view that we are essentially invulnerable in the 1980s. The current wisdom is that no foreseeable disruption - even closure of the Strait of Hormuz - is likely to be large enough or long enough to reduce supplies significantly; however, that approach places too much emphasis on the actual physical interdiction. The Office of Technology Assessment recently observed correctly that

> "The U.S. economy and energy supply system were jolted by two oil supply disruptiona during the decade of the 1970s. In each case, deliveries of liquid fuels were restricted or unreliable for several months after the onset of the dusruptions, and oil prices rose rapidly. Following these initial instabilities, deliveries became more reliable; but petroleum prices remained permanently higher than before the disruptions, a situation that is economically equivalent to a permanent reduction in petroleum supplies. Thus, both disruptions can be characterized as resulting in a temporary period of instability, but a permanent reduction in oil supplies."

Thus, it is not necessary to postulate a supply interruption of unrealistic length in order to produce an adverse impact. That same impact can be produced by any disruption which prompts a significant price increase, thereby producing the equivalent of a permanent supply reduction. While few consider it likely that we will see 120% price increases as we did after the 2 earlier shocks, it is not difficult to construct a similar scenario. The U.S. and other consumers are, to be sure, better protected than they were a decade ago but there is no basis for complacency:

- While it is true that there is some 10-12 million b/d of currently unutilized production capacity around the world, there is no basis for assuming that it would be made available to dampen a price increase. OPEC nations possess 95% of the world's unused capacity, and if, as the price hawks currently urge, OPEC decides to pursue a price maximization strategy, they may be delighted to take advantage of a disruption to increase revenues through price rather than volume. In addition to OPEC economic interests which may diverge from our own, the Arab states and Iran control 80% of the world's unutilized capacity, so we cannot ignore the possibility that politics could deny four-fifths of the shut-in production if, for example, another Arab-Israeli war were to break-out.
- While it is true that the United States has developed a Strategic Petroleum Reserve of 487 million barrels, there has been a corresponding drop in privately owned inventories so that the combined government and private stocks offer little improvement over the situation which existed in 1979. Moreover, it is far from clear that the government will be willing or able to release its

strategic stocks in time to eliminate price escalation.

- Although oil demand was significantly reduced through voluntary and mandatory conservation measures during the earlier shocks, there is little "fat" left in the system and the government has properly foresworne mandatory controls. Therefore, savings will be more difficult to achieve in time of emergency.

To summarize with respect to the supply disruption scenario, it would be extremely unwise to assume that the United States is no longer vulnerable to the economic traumas of the 1970s.

Turning, secondly, to the ongoing cost of obtaining oil imports when there is no supply disruption, it is clear that dependence upon oil imports imposes a very substantial burden.

- Last year, the United States spent $59.2 billion on imported oil. That expenditure was not only the largest single item on our total import bill, but it was almost 3 times as large as the second largest item, $22 billion for automobiles and other transportation equipment. Oil imports also dwarfed the next ranking items: primary metals ($17 billion), electrical machinery ($16 billion) and apparel (13 billion). Thus, although the trade debate focuses on Japanese cars, European steel and Third World shoes, it is clearly a mistake to ignore the oil import burden. Similarly, although trade planners hope that a declining dollar will encourage agricultural and other exports, we should recognize that total agricultural exports of $44 billion in their peak year 1981, would only cover three quarters of last year's oil import bill. In sum, we must take steps to encourage the development of U.S. energy resources as an alternative to sending a flood of dollars abroad to pay for oil.

o Moreover, those direct oil import costs are not the only costs imposed on the economy by reliance upon foreign oil supplies because there are also indirect costs. It has been estimated that the FY1985 defense budget included $47 billion arising out of military commitments to protect Persian Gulf oil exporters and that $727 billion will be spent for the same purpose over the next 10 years. At a time of concern over defense expenditures and huge budget deficits, we must recognize the significant contributing impact of reliance upon oil imports.

o Nor can we ignore the role of oil prices in the delicate world financial balance. Although much of the present concern is about the international debts of oil exporters, we must recognize that additional U.S. demand on the world's available oil exports must eventually force prices to start rising again thereby jeopardizing the financial health of oil importers.

o After a decade when the U.S. spent a cumulative $550 billion on oil imports, it is hardly surprising that oil exporters control a significant portion of the large volume of liquid assets that overhangs world currency markets. For example, at June 30, 1984, OPEC members had some $84 billion invested in the U.S. including $19 billion in bank deposits and $32 billion in Treasury bonds and bills. Unlike Federal Reserve Board Chairman Miller in 1979, Chairman Volcker is worried about an overvalued rather than an undervalued dollar, but the switch simply emphasizes that transigent vagaries of currency and capital markets where fundamental circumstances can, on occasion, be overwhelmed by perceptions and comparative opportunities. The danger, as Volcker has pointed out, is that market psychology can change rapidly and lead to a sharp decline in the value of the dollar, in which case the U.S. could once again face the problems of inflation and tightened monetary policy.

In summary then, any assessment of oil imports should consider their paramount contribution to a deeply disturbing balance of trade deficit, their significant call upon defense funds at a time of dangerous budget imbalances, their integral role in international debt problems and their causal relationship with unstable currency markets.

While no one would pretend that preservation of the Synthetic Fuels Corporation would eliminate these many threats to

U.S. economic stability, development of our vast resources of oil shale, tar sands and coal is surely a step in the right direction. The synthetic fuels program was expressly designed to enhance the Nation's energy security by encouraging private sector development. That is an entirely appropriate role for government because we simply cannot expect investors in private companies to underwrite the Nation's energy security anymore than we expect them to underwrite our military security.

Therefore, I strongly urge you and your colleagues to continue funding for the Synfuels Corporation.

Chairman **LaFalce**. Thank you very much. I think that was a balanced presentation of our energy needs.

I think I will defer my questions until the end today, so I'll call on others first.

First, because he was in the ranks way back when, as I was, when we were debating what to do to help improve the energy independence of the United States, I'll call on Mr. McKinney.

Mr. **McKinney**. Thank you, Mr. Chairman. That's very polite of you. I would just simply say that there are three familiar faces sitting in front of me. And, gentlemen, i'll be very brief. I find us all on the same train, but in different cars. It's amazing.

I couldn't agree more with John McCormick when he talks about the fact about environmental impacts. And then Mr. Schuler continued emphasizing and talking about the fact that we really don't know how to avoid it.

Mr. Koleda said we had the same problem: What do we do with the damned shale? We have CO and SO_2 removers that don't remove the pollutants.

I really emphasize that one of the reasons for keeping this program going in some fashion, it seems to me, is to tackle those environmental aspects. It reminds me of an interesting point. One of you may remember this, but I read a report years ago when we were working on the Energy Security Act that President John F. Kennedy ordered on the future of the world's oil problems.

And, you know, nothing's changed. It's the most amazing thing that nothing has changed. We've harangued. We've gone up. We've gone down. We've gone up, we've gone down. But, essentially, what they said in 1961 is still true today.

As a member of the Banking Committee, I can tell you petrodollars terrify me. It appears to me that the choice we have here is obviously that we're not going to build commercial plants. I'm willing to recede to pragmatic practicality.

Chairman **LaFalce**. Only for the moment.

Mr. **McKinney**. I guess my old dad was right when he always said, "Always have an ace in the hole, or in your pocket, or up your sleeve." And it seems to me we desperately need that. I'm not a bit sanguine, for instance, John, about the political stability of our other oil suppliers, particularly southern Mexico's stability and Central America's stability.

In fact, it's interesting that the most ardent and difficult chairman of OPEC was a Venezuelan. Quote/unquote, "our friends." It's impossible to have friends when you're a big boy on the block and they're in rags; they hate our guts.

So I appreciate what you have all said. I hope that gentlemen like the three of you can talk the Congress into a medium position where we are prepared but not blowing away our wealth.

We are not in control of our dollar. Because of petroleum, we are not in control of our Middle Eastern foreign policy. And, in fact, this, to me, seems to be the source of an enigma of the United States.

If, in fact, we are a free enterprise nation, we shouldn't make ships. We shouldn't make slag steel. We shouldn't do a lot of things. But you can't be the leader of the free world and not make ships and not make steel, and not have energy independence.

And the enigma to me, John, is spending over $300 billion for Defense, which really depends totally on mobility fuels. You can't stuff coal into an F-16, and you can't fly it on solar power either.

And I sometimes have to question why are we spending $300 billion for this defense establishment, which could be brought to its knees with energy problems. Nothing has changed.

Thank you. You were very courteous to let me go first. I really appreciate it.

Chairman LAFALCE. One of the reasons was I anticipated what you were going to say.

Mr. MCKINNEY. Because the chairman of the Banking Committee had to fill in for me in New Hampshire while I was stuck in a storm, I'd better go down and attend his hearing or else.

Chairman LAFALCE. Mr. Carper.

Mr. CARPER. Thank you, Mr. Chairman. I'd like to welcome our panelists this morning. I would like to direct first a question to Professor Schuler. He mentioned that there doesn't seem to be a great deal of enthusiasm for mandatory requirements.

I would just ask with regard to CAFE requirements, fuel efficiency performance. We've seen some reversal of the policy, at least some indications you've gotten from the administration, to forgive General Motors and Ford to give them a bit more time, and to relax the standards that were set several years ago, the standards which Chrysler Corp. has already achieved.

I just ask for your comments on that. And as to what counsel you have for the Congress in terms of requiring fuel efficiency standards for automobiles and other vehicles. What should we be doing?

Mr. SCHULER. Clearly, the mandatory fuel efficiency requirements have been the major contribution to the petroleum conservation in this country. And I applaud that. I would say that I don't think, for example, that there will be as much enthusiasm for those automobile efficiencies to the extent that they depend upon smaller cars.

Perhaps I'm speaking only as the father of four teenage drivers. But I'll be perfectly candid. We have small cars, and I am somewhat concerned when they have to drive those small cars. And I talk to an awful lot of people who feel the same way, that safety is simply not there in these small, light cars. And so there is another factor that I think is coming into play besides the fuel efficiency question.

That is, the safety—that's the insurance costs, and those components.

So whether Congress and the administration walk that tightrope through those frequently conflicting goals—I'm glad it's you who have to do it and not I.

Mr. CARPER. Mr. McCormick.

Mr. MCCORMICK. I couldn't agree with you more, Congressman. It doesn't make a lot of sense to spend many billions of dollars on conversion of shale for a substitute for petroleum gasoline to put that into an automobile that is not meeting fuel efficiency standards that the Japanese can.

But, at the same time, I also appreciate the safety factor of smaller cars. We're talking too much this morning about either/

ors. Either we produce oil shale or we build larger cars, or we give General Motors waivers on CAFE.

There have to be a great many components that go into this discussion. I could add another one, but it certainly wouldn't be germane to this committee, and that is the global climatic change concerns that the international scientific community has.

And they're looking at some very frightening prospects in the outyears of this century. So if we began to factor in other parts, I think we'd see that we've got a far larger issue facing us, but that we would back away from CAFE standards now and continue to try to push on the Synthetic Fuels Corporation's future is just totally out of sync.

Mr. **Carper**. Mr. Koleda.

Mr. **Koleda**. Mr. Carper, our organization has no position at all on that issue. [Laughter.]

I think Mr. McCormick made a good point. We're talking about a balanced effort here. We have coal issues. Clean coal and utilities are being discussed by the Congress. We have fuel efficiency standards that are part of the mix. We have offshore leasing, which is very much in the news these days, as part of the equation.

Our feeling, in industry, is, if the Government wants, for public policy reasons, to look down the road and encourage these technologies, industry is ready, has been for about 5 years. There is a relatively small program at the SFC. Projects are ready that cover the span of technologies.

Mr. **Carper**. Thank you, gentlemen. Thank you, Mr. Chairman.

Chairman **LaFalce**. Mr. McCandless.

Mr. **McCandless**. Thank you, Mr. Chairman. In listening to you gentlemen, I find that we have a series of what I consider to be contradictions within the system in which we find ourselves. You pointed out some of these this morning. Example: yesterday morning I spent most of the morning in the field of Outer Continental Shelf drilling with Secretary Hodel. A priority? No. Lawsuits, moratoriums. I find that in the California and San Francisco areas, the Los Angeles areas, refining is not at total capacity.

I was interested in your comment about unutilized capacity. The reason it isn't, is that they are not able to do to the State implementation plan for air quality, and the air quality management plan of the south coast basin, as well as the bay area. There's all kinds of oil in California. The problem is, it's high sulfur. All the heavy oil—call it sour crude, whatever you want to call it, and it is cheaper than to find oil in a foreign market, has a higher quality, because the refining process isn't as great.

But to go into the tertiary treatment of bringing this oil out in, say, the Kern County area, we ran in a problem for the excess sulfur emissions. So that crude is still in the ground, and will be there until such time as this technology that we talked about briefly, is developed. As for the Alaska Pipeline, the ability to move that oil into the United States was severely restricted by actions of the State of California in developing terminals. California had already shipped the oil to Texas through its own pipeline.

These are statements, but I guess what I am trying to find out is, we say we have a shortage of oil. We have to import. We are importing the oil, because of a number of reasons. We are not willing to produce it ourselves, or the type we produce is not compatible with refining, that is, under certain rules and regulations dealing with air quality.

I don't know if any of you gentlemen have a comment here, but I see this as a series of contradictions. We are willing to have a deficit, it was pointed out by you, Mr. Koleda, or I guess, Mr. Schuler, it was. At the same time, we are saying, we don't want to drill off the coast of California.

So I think the Congress and the Nation has to find its priorities here, in the form of better technology, and to possibly make some of these environmental sacrifices that are allegedly going to create problems, if we are going to address the deficit.

I don't know if anybody wants to comment on this or not.

Mr. SCHULER. I would just like to suggest that I agree 100 percent with you, that, unfortunately, domestic energy development necessarily incurs some risks and costs that you fellows up here would just as soon avoid, unless there is an offsetting security risk and cost to dependence upon oil imports. I understand that very clearly. The balance has to be struck, but it does have to include a recognition of the security component, because, absent that, if I were in your shoes, I wouldn't do anything that incurred environmental risks or political risks or financial burdens or anything else.

I'd just say, well, we'll just hope that we can rely on that cheap, imported oil and put the problem off, as long as you can. That is why the only way to break through that is to recognize these enormous burdens that are imposed upon our overall security, because of this dependence upon oil imports.

Mr. MCCORMICK. Mr. Chairman, back in the early 1970's, when the great emphasis was on Project Independence, total reliance upon U.S. domestic supplies, there was a small and not vocal—I think it just sort of dissipated—point of view that said, no, we shouldn't drain America first, that we have a stockpile for the next generation and the next century here and in Alaska, and that we can continue to negotiate with foreign suppliers. That is just money in the bank for our future.

I guess I would put the question to you, how do you view now, in 1985, that earlier view about we shouldn't drain America first?

Mr. MCCANDLESS. I think that was answered by the discussion on the deficit and how are we going to address it, and the fact that the largest portion of our deficit in trade deals with petroleum and petroleum-related products. We have all kinds of resources that have yet to be developed in the field of oil. In my other life, I was deeply involved in California in the environmental field with air pollution and air quality. This was kind of a sidelight, but every time we turned around, we couldn't do something, because the technology was not yet available or developed to do whatever it was. All those powerplants in California are required to burn, when they do burn oil, 0.1 sulfur content, which is only available in Indonesia.

So we, through the governmental process, set up that requirement. Bag houses and scrubbers won't do it, if you don't have 0.1 sulfur. Ammonia injections still seems to be questionable. So the emphasis, I think, needs to be placed in the areas where we, as was stated earlier, developed the technology to utilize what we had, including coal, here in the lower 48 and Alaska.

So the answer to your question is, I think our priorities have changed since that time.

Mr. **Koleda**. The other thing that has changed is, that valuable reserve of oil that we might not want to drain, we've drained substantially since 1973, and steadily. Our reserves are at the lowest point that they've ever been. They are substantially lower than they were in 1979. Just this past year, the OTA report came out speaking to the prospects of offshore oil to be found. It was a rather sobering document. The write-downs were on the order of 60 to 80 percent. There is more oil to be found. There is oil available. There are various restrictions. There are companies that could do very well with a few giant finds. But the reality would remain the same. Such finds will not reverse the downward trend in the reserves of petroleum.

We have enormous amounts of potential oil, if we could think about coal as oil, or if we could think of shale as oil. With these solids we know exactly where the oil is. We don't know exactly how to make it oil or what it will cost. In the case of conventional petroleum, we don't know where it is, and we spend enormous amounts of money finding it. Once we find it, it is terrific. There is nothing else to do, but put it in the pipeline and get rich. A lot of money is spent, a lot of capital is spent looking for oil.

But if you take the capital costs per barrel added to reserves of conventional exploration and drilling for oil, and compare that to the capital costs of the barrels added to reserves by building a synthetic fuels plant, I suspect that it would look remarkably similar if not, in fact, somewhat favorable to the synthetic fuels facility, because once that facility is operating, it is operating for 25 or 30 years, whereas an equivalent amount of conventional oil involves a series of discoveries.

Mr. **McCandless**. If I may, Mr. Chairman, one more comment.

Chairman **LaFalce**. Before you do that, Mr. McCormick wanted to comment.

Mr. **McCormick**. I will respond to that later.

Mr. **McCandless**. I have a lot of trouble again with the national priorities. These are the people of the country, so you have to respect their opinion, but all of a sudden, nuclear power is a big no-no; yet by the year 2000, Japan will be 90 percent dependent upon nuclear power to generate its energy. By 1990, France is expected to be 70-plus percentage dependent. There is a purpose in that. Those two countries are required to import their oil, and they do not have anything in the way of oil reserves at all, yet we've gone on this kick that anything nuclear is a big no-no.

Thirty-six operating plants are in the British Isles. Pick a State. There are 11 nuclear plants that supply the Greater Chicago area. 256 plants, either in the process of being built or in operation throughout the world, and yet we've discarded this, and said, this is not a satisfactory alternative.

Chairman **LaFalce**. Mr. McCormick, do you want to make a comment on that?

Mr. **McCormick**. Yes, I would. In fact, on both, if you don't mind. I would like to put into a bit of perspective what we're really discussing, when we talk about 1 million-barrel-per-day supply of oil shale, which I am going to say is roughly about 5 percent of our Nation's daily crude oil demand.

Kerogen is the commodity in that shale that you want to cook out and convert to oil, and some of the better grades of shale hover around 20 gallons of kerogen per ton of shale. Just the rawest calculation—1 million-barrel-per-day oil shale plant would require the mining, the retorting and the disposal of something like twice the amount of our Nation's annual coal production.

I am saying something like 700 million tons of shale would have to be run through that million-barrel-per-day plant, and about 600 million tons would have to be disposed. Now where? Likely in three counties in Utah, Colorado, and Wyoming. When you consider the water demands and the host of things that would go into the actual construction and operation of a simple million-barrel-per-day oil shale plant, it really begins to dwarf one's imagination, how we can consider that oil shale might be an ace in the hole.

You're talking now only about 5 percent of our Nation's needs.

Mr. **Koleda**. John, have you ever heard of 1 million-barrel-per-day shale plant?

Mr. **McCormick**. I haven't. I am talking about models.

Mr. **Koleda**. 10,000 barrels a day is the standard module.

Mr. **McCormick**. Granted, but let's talk about the total production of 1 million barrels per day from 15 or 20 plants. We are now talking about moving the equivalent of our Nation's annual coal production and having it dispose of about 60 or 70 percent of that, in roughly three counties, counties which are water-dependent, also continue negotiating with the Southwest for its growing water demand. I really begin to question whether we're wasting a lot of time just discussing oil shale.

Mr. **Schuler**. Let me just interject. Is that not precisely the reason to go ahead with a demonstration and a commercial-sized plant? Don't we need to determine, as I said earlier, whether that oil shale is a viable alternative? But the only way to determine that is to go ahead and build something and just try to dispose of the waste that you are creating, and so forth, then gross it up, if you will, to see.

But that is what I understand the Synthetic Fuels Corporation role to be, is to deal with precisely these problems that you don't have in the laboratory. You just boil the stuff in a retort or something, and you get kerogen out. But when you get the material handling and the material disposition problems, that can only come on a commercial scale. That is why these kinds of projects, I think, need to go ahead.

If it turns out that after we get experience operating and that there is no viable future for the oil shale business, then, for God's sake, let's start looking somewhere else for our energy supplies.

Mr. **Koleda**. John made a good point. It is not all shale. We are talking about great interest in coal for chemicals. In fact, Tennessee Eastman, a totally private operation, incidentally, no Government money requested or received, is producing methanol from coal, gasifies the coal, makes methanol, takes it to acetic anhydride, which is a chemical used in the processing of photographic film. It is a very important chemical to that company, as you can imagine.

There was concern back in the 1970's about the price and supply of natural gas which would be used originally as the feedstock to support acetic anhydride. That company made the decision to go to coal for security of supply and price.

So chemicals from coal is one of the things that comes out of what is called synthetic fuels technology. It is really, how do you gasify coal or liquefy it directly. Those are the two key things with coal.

The Great Plains project we have heard so much about is producing pipeline quality high Btu gas. A different application. The cool water project in California, very successful, is making gas and using it in a combined cycle power generation facility. They run the hot gas through a gas turbine. The waste heat is used to raise steam through a steam turbine. It is an enclosed system. It has environmental benefits John, correct me—I think it is a rather exciting direction.

One of the possibilities that utilities may want to go in the future. It is called a synthetic fuel. Heavy oils, tar sands, and oil shale can be turned into petroleum and gas through synfuels technologies.

We are not talking about a shale-focused effort here. We are talking about building modules of plants in each of these variety of technologies that are large enough so that the key equipment is at commercial scale. You don't want to go smaller than that, because you haven't answered the question of whether it will work at commercial scale, but once you have gone to that point, nobody is saying we should keep force feeding it.

We actually are near the end of this initial phase of synfuels development. We need to get over the hurdle. The Synthetic Fuels Corporation is on the verge of putting those modules in place in the key technologies. I'll bet they are planning to spend no more than a fraction of the money they have available.

You will hear more about that tomorrow with the witnesses.

It is a relatively inexpensive program. It will play out over a period of time, yield enormous knowledge, and as I said before, we can cap the costs. We can say that shale was never going to cost any more than it did there. That was the first one. Never any more for the gas technologies and the others than this, because we can start improvements at this point.

What a wonderful thing for Congress to have done in a period of glut, to give, to bequeath to a future Congress, the knowledge of which technologies work and which ones ought to be pursued. When you are in a panic situation you don't have the time to take care, even on such things as what I suspect are John's major concerns, the environmental questions. In a panic, you are not going to worry too much about those. Now we can.

Chairman LaFalce. Mr. Levin.

Mr. Levin. I don't know whether to ask questions or make a comment, but I listened to what you said, Mr. Koleda, and I think I wonder what world we are in and where you have been and where I am. I think this whole area is in complete chaos.

You talk about bequests by this Congress to future Congresses. I don't think the country has a policy. I don't think it knows whether it should have a policy. I don't think this administration has a policy. I don't think this Congress knows whether it should have one.

We have eliminated by the appropriation process funding. You talk about bequests. We are meeting as an authorizing committee, I think, after we have acted through the appropriations process.

This subcommittee—I wasn't around at the time—helped to set a chain of events moving. A corporation was set up. It has absolutely no credibility.

I am among those who have been reluctant to give up the Government playing the role in this. But the extent to which the Government played a role, we are worse off than when we started.

When I was in AID, we faced these issues in a small way, and I was among those who felt that we had to experiment in one case with a small photovoltaic process. I think I was right in approving the project.

But it is not only that the oil crisis passed, but the Government is in disarray and the private sector is in disarray, and you talk about bequests.

I mean, so far our bequest to the future is chaos, that I can see; and I don't know if the present administration is interested. I don't know what its position is on anything.

Again, I don't know where we are. I don't know what we should be doing.

I tried to reach the chairman yesterday—and he was busy working in his district—because I wasn't really sure what the sequence is here, what our role really should be.

I only heard one of the testimony. I read somewhat quickly the testimony of the other two of you.

It is utterly unclear to me, and I think to most of the Congress, what should come next, and I am not sure you have provided any clarity. You disagree among yourselves on some things. I agree with you on some things.

I think I agree, Mr. Schuler, about the peril of the present and the reliance on imports. But so far, I think we have to acknowledge that what has happened in the last years to try to spark some experimentation with alternatives has failed, not only because of the diminution of crisis but because—whether it is incompetence or whatever it is—the public sector has failed and the private sector has failed to invest.

And I think you have to help us face starkly what we do now, if anything, other than to let chaos unravel.

I just want to say that what we have done up to now is to talk about putting some kind of fund in the Department of Energy. My experience with DOE when I was over in AID is that is the last place I would put an experimental program. The whole commercialization effort that DOE headed was an utter failure, to my dismay, in an administration I was part of, and I consider this kind of an S.O.P.—window dressing to say that the U.S. Government is doing something.

So I just want to tell you where I am coming from because I think a lot of people feel there is some kind of a need. I think some of the strongest critics of synfuels feel there may be some kind of a need. I think that coalition has a lot of different attitudes, though, about the long term.

Some people think get rid of synfuels because it is Government dabbling, right? Others think get rid of synfuels because it has been absolutely incompetent, and we want to end a failed role for the Government which probably should not have failed.

Others are motivated by an opportunity to get rid of $5- or $6-billion in a time of deficit.

So you have got a coalition to end the Synfuels Corporation, but it really manifests, I think, the disarray in this country. It doesn't symbolize a clear-cut set of policy conclusions and policy objections, and I would hope—and I think it is good we are holding this hearing—that out of this maybe we can begin to get a little bit of light.

But I don't know what you want to say, if anything. Maybe you should say nothing.

Mr. McCormick. Congressman, I would just like to comment.

I am not so certain that we failed in the last 10 years. I think what failed was trying to shove this piano through the keyhole, that being trying to commercialize very expensive technologies to produce products in excess of $100 a barrel and try to compete in the real world.

But the example of the Texaco gasifier and Eastman-Kodak's use of that to convert coal to a multitude of petrochemical products is a real success.

I visited the TVA-Texaco gasifier at their Muscle Shoals, AL, facility converting coal to ammonia to fertilizer, another success.

The cool water project is, I think, an excellent response to the State of California's very stringent air pollution control regulations.

Mr. Levin. So you think we are about where we should be in terms of alternative fuel development and experimentation?

Mr. McCormick. Yes, because we are turning coal into products where the technology and the product sort of match each other.

But again, to try to look at the future demand for transportation fuels, then we really have a difficult time seeing the part that synthetic fuels can play in that.

But to convert high sulfur coal to methanol, which becomes a building block for many petrochemical products, or to convert high sulfur coal to electricity through a medium Btu gasification, I think that is a legitimate use of Government dollars to research that, and I think it has attracted private sector money.

You know, one might look at the Great Plains gasifier as the first step in a process to convert lignite coal to clean electricity and along the way to produce other products. That plant does produce medium Btu gas, which could be cleaned up, run through a gas turbine, the waste heat going back into the system, and that is a large coal plant.

Mr. Levin. So your bottom line is that the last 10 years have seen some progress, and what should happen now?

Mr. McCormick. I think we ought to now start to refine some of the glitches there in some of these technologies. I mentioned the fact that the Stretford stripper process at the Great Plains plant is not working. That has got to be corrected. That is a legitimate research project that I hope DOE would take on and complete.

But I don't see how we are going to improve upon oil shale retorts such that we can get the price down from $100 to $50. I think if we can get a 10-percent improvement in the next 20 years of research of those oil shale retorts that would be about the limit, and I have seen industry opinions that are about the same.

Mr. LEVIN. So under your scenario, to just sum it up, there are some changes but not major changes in terms of the import picture, in terms of reliance on the present source of oil for transportation, et cetera? Your scenario is things aren't so bad and there is no major problem?

Mr. MCCORMICK. No, I am not going that far. I think things will be bad, but I don't think that we can rely upon oil shale.

Mr. LEVIN. If things are going to be bad, what do we do?

Mr. MCCORMICK. I will say again, the global climatic change is a very real potential in the minds of the international scientific community. At a point in time when we are discussing this next international crunch on oil availability, I will say that oil shale won't be an option at that point.

Mr. LEVIN. But what do we do though?

Mr. MCCORMICK. That is a much larger debate.

Mr. LEVIN. That is what the debate is all about.

Mr. MCCORMICK. We have to start mining more of the wasted energy in our system, both in transportation and in our own residential use of energy, but there is a cap on how much we can do.

Mr. LEVIN. So your answer is conservation but that just goes up to a point?

Mr. MCCORMICK. That plays a part, but it is not the answer.

Mr. LEVIN. Is there a problem, though?

Mr. MCCORMICK. We certainly have an abundance of natural gas on the North American Continent. I would like to see more natural gas going into the residential, the utility, industrial, and, possibly, in the transportation sector.

We do have other options that we haven't yet discussed. Conservation and greater reliance upon natural gas buys us some time, but I just keep going back to the fact that converting coal and oil shale to liquids, we just don't see that as an economic or resource use option.

Mr. LEVIN. How about the use of grains for transportation fuel?

Mr. MCCORMICK. I think what we have created is not a gasohol industry; we have created a sugar or artificial sweetener industry, corn syrup industry for our tax credits for gasohol.

Chairman LAFALCE. Mr. Schuler, do you have any responses that you would like to make to the responses that have been made to Mr. Levin or to Mr. Levin's own comments?

Mr. SCHULER. As I understand Mr. McCormick's view, coal-related projects and gasification projects are valid for the Government to support, and I agree with that because if we are ever going to utilize that coal we have to find a way to do it cleanly.

Great Plains offers a prospect of doing that, and whatever the glitch is that exists out there, had we not gone to a commercial scale we probably wouldn't have discovered that glitch.

So these things—it is justified.

Chairman **LaFalce**. You agree with that, Mr. McCormick, that it was probably necessary to go to commercialization?

Mr. **McCormick**. Mr. Chairman, having visited that TVA facility 2 weeks ago and talking with the project managers, they told me that they are not satisfied with their stripper, sulfur stripper, either. It seems to be a generic problem.

Chairman **LaFalce**. That is not responsive. I doubt that very many people are satisfied with what they have done. The point is, would they be where they are now had they not done what they did?

Mr. **McCormick**. I guess had I talked——

Chairman **LaFalce**. Had anybody asked me am I satisfied with the mess I have written, I would say no.

Mr. **McCormick**. The stripper at the Muscle Shoals plant is not meeting compliance. One would have to question why we had to build the Great Plains gasifier to discover what people apparently knew.

Mr. **Schuler**. I think if it hadn't have been that glitch it would have been another glitch. This is what we keep finding. This is what I understand the synthetic fuels program to be.

But let me just move on. While I view Great Plains and Daggett, and so forth, as very valuable ways to burn coal, to use coal, it is not that we need the gas. There is plenty of natural gas out there, as you acknowledge. It is not going to last forever, but it is available now. But we need to find a way to use that coal.

The shale oil problem is a different problem. That we do need. We need the liquid fuel. We need the mobility fuel, whether it is for defense or for automobiles. That starts from the fuel requirement and works back to where you get it from rather than starting with what can we do with all this coal we have got.

And it may be that shale oil is never going to make it, but we have got to learn that now because then we can decide that we are going to go to enhanced oil recovery, to heavy oil utilization, to tar sands, to whatever it is. But we have got to make that determination now because the lead times are so long that the crisis will be upon us if we leave it.

And if I could say something else. Whatever criticism we have of the Government's handling of it or the Synthetic Fuels Corporation's handling, without the Synthetic Fuels Corporation and the support that the Government has been providing we wouldn't have any of this at this point in time.

Mr. **Levin**. Like what? "This" means specifically what useful things would we not have had?

Mr. **Schuler**. We wouldn't have had the cool water reactor. We wouldn't have the Great Plains project, which at least—it may not be working perfectly—it is producing natural gas. It is priced too high because gas has fallen in price, but we do have results. We can see that we can create useful energy with those.

If we leave it up to the private sector, it is not going to get done for the very valid reason that we cannot expect the stockholders, the pension funds, and everybody who owns stock in corporations to underwrite the Nation's security. We don't expect them to underwrite the Nation's military security, private corporations. We can't expect them to underwrite the Nation's energy security. That is not the business that they are in.

So unless there is Government support during this time of falling oil prices, the projects aren't going to get done, and then all of a sudden we are going to have oil prices going back up and then we are going to have the leadtime involved in sorting out which technology to pursue.

Chairman **LaFalce**. Mr. Koleda.

Mr. **Koleda**. Mr. Levin, I appreciated your recitation of the elements of confusion because I happen to agree with them. I have been one of those who have been wrestling with this issue for the past 5 years. I am probably too close to it to offer much clarity, but I will tell you what I have thought in preparation for this hearing.

We need to separate at least three issues. First is strictly the energy question and the role of synthetic fuels, quite apart from any Government position in it at all. What can be done? What might be learned? What could be the contribution of pushing ahead in that area no matter who funds it, privately or publicly?

Maybe the second issue ought to be: what about that Energy Security Act that was passed 5 years ago and amended last year with substantial changes? What about the program today under the law?

And I think the third issue has to be the implementation of the law in the past 5 years, and I would say that the bulk of the difficulties that synthetic fuels have had have been a combination of two things.

The energy market turned in the short term, which told industry we can't make any money on these projects, and, in such circumstances, industry did what it naturally does. It walks away from things it can't make money on. That happened.

And at the same time, it is fair to say that the administration did not put this program anywhere near high enough on its list of priorities to have the things that naturally flow from that. The level of the appointees, the quality, the commitment, the history of commitment was not there.

And when you don't do that—we have seen it in agency after agency—if you don't have people in there that have the backing of the White House and themselves that are totally committed to the program they are to manage and competent and have the respect of industry, things tend to go wrong. It follows as day follows night. We had that at the SFC.

I think it is fair to say that the bulk of those mismanagement problems, lack of attention problems, are behind us. I won't say 100 percent gone, but it is not a perfect world.

I think that the program is now in pretty good shape. They have a business plan which seems to make sense to industry. They have covered most of the technologies that are out there, the resource bases.

For instance, when you do the Cool Water project which gasifies coal on the west coast, there are other gasification technologies that ought to be demonstrated. Cool Water, incidentally, before the Synfuels Corporation came along, was going down. It would not have gone ahead without the $120 million price guarantee that the SFC gave it.

I believe, John, you spoke well of the Cool Water project and what we have learned. We wouldn't have learned what we have if we hadn't gotten that program up and going. It is up and going. Other utilities are looking at Cool Water as a possible way to go in the future for them. The program is poised, ready.

In addition to Cool Water we are learning from Great Plains, and despite all the negative press it has received, we are learning at Union. We wouldn't have learned those things without the SFC.

But what we also have is a large number of corporations with a large number of project proposals awaiting us that wouldn't be there unless there were a Government program. I can assure you none of the work that has gone into developing these ideas, proposals, and potential projects would be there. Project teams would be disbanded. They would be doing other things.

As just a wrapup statement, I'd like to pick up from something that Mr. McCandless said earlier. He talked about nuclear.

There seems to be a tendency to look at these energy sources one by one. I understand why we have to, it's the nature of jurisdictions. We sometimes hear that nuclear is a bad thing and that we shouldn't go ahead with it; the risks are much too great.

Offshore drilling, we've got to be careful about. It should go very slowly because of the risks involved with it. We're even hearing that woodburning causes noxious fumes. The smoke has some bad stuff in it; maybe we ought to ease off in some of these towns with the burning of wood.

One by one, we point out the negatives associated with the various energy production modes; they're all negative. Nobody produces energy for its own sake, but because it's something that's necessary for continued economic growth and development. That's the bind we're in. We can't shut all of these energy sources down.

Industry is not saying, and I'm certainly not saying, that we ought to go full ahead and throw all the energy eggs in the synthetic fuels basket.

We're not saying $88 billion, not $20 billion. They have $7.9 billion. I doubt they're going to expend anywhere near that, even if they go ahead with their business plan. Maybe we're talking more like $5 billion will eventually get committed. And we're going to learn something about one or two shale technologies. We're going to know what the problems are if we really wanted to go down that road. We're going to know something about how you gasify high sulphur coal, low sulphur coal, lignite, and other coals. That's going to be a very valuable knowledge.

When I said "leave something to a future Congress," what I mean is, this program will yield knowledge which will be very valuable when we have to say "go" a little later on. And we'll know what alternatives to conventional oil cost or conventional gas. We don't know yet because we haven't taken the first big step. It's not research. Research is something else.

Research size in synthetic fuels today is the commercial scale module. That's the level at which research has to take place in synfuels at the moment, in our view.

Thank you.

Chairman LAFALCE. Thank you very much. I share Mr. Levin's thoughts that we do have considerable chaos and confusion right now, with respect to energy policy in general, and synfuels in particular. And there are many, many reasons. But I think one of the reasons—of course, and we ought not to forget that—is our form of government—the fact that we had the Carter administration up until 1981, the Reagan administration now, and also the Constitution which says that the House of Representatives shall be subject to change every 2 years. So, we have different Representatives every 2 years.

We often bring in new Members with new ideas. Of course, Members can change their minds because they come to adopt new views, what they hold as true views, or because of a certain impatience with either the imperfections of management or the administration or impatience with lack of success.

Of course, in creating synfuels, I think one of the things that we anticipated was a lot more failures than successes. That's the nature of the beast. That's true whenever you're trying to develop a polio vaccine, for example. You are going to have a few years of failures; you just don't give up. You keep searching for that success.

Somewhat the same thing is true with synfuels. For example, on the Banking Committee, where you had almost unanimity a number of years ago, until the recent rescission vote, there were 37 ayes for rescission, and 8 no's.

Mr. McKinney, Mr. Lundine and myself were among the no's. But, in any event, we've got to deal with the state of mind that exists today.

Mr. McCandless pointed out some of that state of mind—basically, no nuclear energy, no offshore drilling, no exhaustion of our domestic supplies so long as we can obtain foreign supplies at a reasonable price—no trade deficit. Do something about that. And no Synthetic Fuels Corporation either.

Now, that's not to say that all of these are totally inconsistent, but there are at least some inconsistencies there. I think the question is: How do we make some rhyme or reason out of a policy given the present disposition of the Congress?

And, of course, we've only heard from the House thus far. We haven't heard from the Senate, and we haven't really heard from the administration.

One of the reasons it's not unwise for us to be having this hearing now, as Mr. Shumway suggested, is because the action of the Appropriations Committee in the House is not necessarily going to be followed by the Senate. So, it would be good to follow through on the authorization bill that has already passed, H.R. 935.

A lot of this wouldn't have come about if synfuels hadn't had so many imperfections in its management practices. But that's another large factor that has led to the confusion, and has led to the state of mind of the Congress. The point is: Where do we go from here?

I'd like to think that the bad management practices and policy judgment of synfuels are behind us. I'm not convinced that's the case at all. I never really was convinced that the Synthetic Fuels Corporation in and of itself was the best form. I share Mr. Levin's point of view that leaving it up to the Department of Energy was not the best forum to use to achieve our energy goals, whatever those energy goals were.

So, where do we go from here? Do we do nothing with existing law? And what do we have right now? About $7 or $8 billion available based upon the legislative changes that were made last year.

Do we go along with the rescission, which basically cuts it down to $500 million and shifts it all to the Department of Energy?

Do we fight for something in between?

And whether it's the Department of Energy or the Corporation, what do we do? Do we go for the large-scale commercialization projects? Or do we go for these smaller projects?

I think you're more in favor of the smaller projects, Mr. Koleda.

Mr. Schuler, I think you're for both, basically.

Mr. McCormick, I'm really not sure. I think you might be for some of these smaller projects. But, again, the Synthetic Fuels Corporation, try to clarify for me what you think we should be doing in Congress now, at least until the next Congress comes along.

Mr. SCHULER. In terms of the size of the project, the Union oil shale project is a 10,000-barrel-a-day project. I don't think you can probably test the engineering problems on a scale much less than 10,000 barrels a day. So, I think that's a small plant and the kind of thing that should be supported.

As to where we go from here, if, as you say—and it's certainly true—it's taken 7 years to shake out the problems in getting this program off and running.

Chairman LAFALCE. For example, we didn't even have a board of directors of the Synthetic Fuels Corporation for about 2 years or so, because the President of the United States ran around saying he was going to abolish it.

Mr. SCHULER. Whatever those problems are—and Mr. Koleda is in a better position than I am to judge whether the business plan that they now have is sound from the point of view of industry supporting it, and feeling it's viable—if that's a sound policy and if they have in place their board of directors and the staff now, it doesn't seem to me that we gain anything by dropping all that, shifting it to the Department of Energy and having to build up a staff and an organization and a structure all over again over there; because it will take at least another 7 years to shake down in that environment, I suspect.

So, it seems to me that if we at last have something that's up and running, there isn't any need to change it at this point in time. The amount of money that is available to it is certainly a question; that depends on how much they can wisely use.

But that's a judgment that you all can make.

Chairman LAFALCE. Mr. McCormick.

Mr. MCCORMICK. Mr. Chairman, I'd like to try to supply for the committee a list of private venture synfuels projects constructed and in operation and being planned now, say, going back to 1973.

And I think you'll be satisfied, Mr. Chairman.

And I want to go back to your points, Congressman Levin, that we've accomplished quite a bit. Now, we've got a Texaco gasifier out there that is the pride and joy of several companies who have the license and have built Texaco gasifiers and converting coal to methanol. I think it's Shell that's going to use the Texaco gasifier and construct a coal gasification plant somewhere in the South, and I'd like to add that to our list.

Those are the kinds of things that the Synfuels Corporation was designed to create and, instead, the private sector has gone about doing it itself. I think you might find that, Mr. Chairman, if we didn't have a Synthetic Fuels Corporation, we would still have Kodak building a Texaco gasifier and converting coal to methanol.

I would like to see us, Mr. Chairman, go back to the rudiments of researching problems that exist with some of the equipment that's now on line, like the Great Plains gasifier, and then maybe start looking at national energy policy in terms of components—a coal policy.

Chairman LaFalce. You seem to be saying: Rely upon the private sector. I just don't think that we can rely upon the private sector for housing development, for urban development. I don't think we can rely upon the private sector for industrial development.

I think there's a role for government. Now, what the appropriate role for government is is a very debatable question. But I find it difficult to accept what I perceive is your hypothesis: Leave this to the private sector alone.

Mr. McCormick. No, Mr. Chairman, that's not my point.

Chairman LaFalce. That's what it sounded like to me.

Mr. McCormick. I'll try to amend it. I've been arguing for $500 million—$750 million for the commercialization of clean coal technology. It's my hope that the Department of Energy, working with EPA, will use that money wisely to bring about the commercialization of pollution control equipment.

I don't think it's in the private sector's interest to spend their capital to research pollution control, because the provisions of the Clean Air Act would require that they and their competitors have to use that. That's the role of the Federal Government, to research pollution control equipment. It's the role of the Federal Government to encourage the research where industry doesn't have a lot of interest.

But where the Synthetic Fuels Corporation went wrong was it pretty much decided that it was going to follow a direction that we can't.

Chairman LaFalce. We have a basic difference, because I think it's the role of the Federal Government to provide the energy security in the United States, the military security of the United States, the economic security of the United States, the general welfare. How we accomplish that is debatable. I don't think we should say that it's not the role of Government.

Mr. McCormick. We're discussing a small part of the Government's role and many large questions, the one of national security, energy security. A very small subpart of the energy security has become the Synthetic Fuels Corporation. I think we're all admitting that it hasn't produced results, when, instead, the private sector has produced results that the Synthetic Fuels Corporation hasn't.

I'm not saying that the Government should disband its interest in national energy policy. I'm just saying take a serious look at the

Synthetic Fuels Corporation and see if that fits into our national energy policy. I'm saying it doesn't.

Now I go back to the larger question: national energy policy, and perfect that. But don't add the Synthetic Fuels Corporation to the bottom line.

Chairman **LaFalce**. Mr. Koleda.

Mr. **Koleda**. It sounds like you're now saying the problem is it doesn't have enough. Well, it's about to complete a program, and I think we ought to keep it going. I think the question before you, Mr. Chairman, as I understand H.R. 935, is it has two parts. Is it SFC or DOE? Is it $7.9 billion or is it $500 million?

Mr. **Levin**. That theory isn't the question. The question is what is the result of the events of the last 5 to 10 years, or the more basic set of issues as to whether we should have a national policy. What should be the mix of the public and private sectors?

I mean, it's not a matter of $6–$7 billion.

Chairman **LaFalce**. The fact of the matter is we will be called upon to vote yes or no. We'll be called upon to vote for a certain dollar figure.

Mr. **Levin**. But I think Members want to have some kind of greater certainty about the underlying issues, some of which the chairman has just, I think, elucidated in response to you. You're making certain assumptions about who does what, Mr. McCormick, and how much has to be done. And I think Members of Congress, by and large, are responsible enough not just to want to vote yes or no, for $7 billion.

We want to vote in terms of national needs, national priorities, national policies, and the appropriate roles respectively of the public sector, if any, and the private sector.

And, in that regard, there is today, I think, something close to total chaos in terms of understanding and in terms of perception. And when there's total chaos and a deficit, people vote "no." That's understandable and probably defensible.

You sit here after the directors are ready to do that at a time when the vote was 3 to 1.

Mr. **Koleda**. Mr. Levin, I can react to everything that you've said and agree with much of it, but I'm trying to do it piece by piece. I guess I'm talking about one piece and you're interested in talking about another.

Mr. **Levin**. We're talking about the same piece.

Chairman **LaFalce**. Why don't you finish the piece that you started on?

Mr. **Koleda**. I'm picking up from your question, which is what do we do now? I assume you meant how does this committee dispose of the matter before it?

Chairman **LaFalce**. Yes, we are going to have to vote.

Mr. **Koleda**. Which is H.R. 935.

Chairman **LaFalce**. Whether to amend it or not, yes.

Mr. **Koleda**. That's not to say that the questions being asked by Mr. Levin aren't in fact perhaps even prior and far more important to deal with. But, on the specific question, the energy industry would agree with what I think Mr. Levin said earlier, with respect to the Department of Energy; the experience in the 1970's of the energy companies with the Department of Energy left a rather bad taste in its mouth.

Their feeling was that the Department of Energy micromanaged the projects, tried to tell them how to do it, tried to really make business decisions that they felt were better left with industry.

Whatever the reasons were, industry is very reluctant as a general rule to work with the Department of Energy on these matters if the Department of Energy is going to reflect in future behavior the experience of the past. It may not, but that concern still lingers on.

So, for that reason, I would say that on the issue of location of the program, no matter what size it is or what its purposes, industry tends to be positive, at least on the concept of what an SFC type organization can do.

As we've all said, there hasn't been that much actually done so far. But the fact is that it essentially provides price guarantee assistance to sponsors, but leaves the risk of building the project and ensuring that it works to the private sector.

If the Union project never works, that price guarantee is never triggered. The risk, however, the cost of building it, is entirely on the company. The companies are prepared to take that risk. They're prepared to say, "I'll bet my technology and my ability to build it if you can give me some help on the uncertainty of what the price climate is going to be."

So I would say that, on the location issue, industry would far prefer the SFC type organization to a Department of Energy.

On the question of money, is $500 million enough?

There's no answer to that. The question rather is: What do you get for $500 million versus what you can get for $7.9 million and is it worth it?

I can only tell you now that if we want to learn how critical process equipment works at commercial scale, we're not going to do it with $500 million across the key technologies that industry believes are ready to be tested at that level now. You can't do it. You can do other things with $500 million, but you can't do what this program was intended to do.

Now, I'd like to make one last point with respect to mammoth projects, megaprojects, and huge boondoggles, and other phrases used to describe synthetic fuels development.

If you and I are an oil company, a chemical company or a construction company and want to build a synfuels plant, we want to size the plant so that we can maximize the profitability of the plant. We want to get costs lowered as much as we can. Our mining operation determines to some extent the size of the plant we want to put there.

Industry will want to build a very large plant if it's got to make money with the product in the market place. It will want to build something far larger than the minimum size necessary to get the equipment to where you know it will work at commercial scale because what industry will do is simply start replicating units on a particular site.

The smaller you make the project on that site, the less economic will be the product. Obviously, if you get to the most minimal size, it's going to be a very expensive project.

As we force the SFC back into smaller and smaller projects, we're forcing them into less economic projects, which means that the cost per barrel of the subsidy gets that much higher.

It's a problem. The smaller the project, the more expensive it gets. I put that on the table because you've got to keep that in mind.

Chairman **LaFalce**. Gentlemen, I want to thank you very much for helping us have a better understanding of some of our energy problems and giving us some different insights as to how we should proceed in the future.

Tomorrow, we will be hearing from representatives of Synthetic Fuels Corporation. I don't know whether you'll be able to be in attendance, but if you are, we'd appreciate it.

Thank you very much.

[Whereupon, at 11:35 a.m., the subcommittee adjourned, to reconvene at 9 a.m., Thursday, September 12, 1985.]

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THE SYNTHETIC FUELS PROGRAM

THURSDAY, SEPTEMBER 12, 1985

House of Representatives,
Subcommittee on Economic Stabilization,
Committee on Banking, Finance and Urban Affairs,
Washington, DC.

The subcommittee met, pursuant to call, at 9:05 a.m., in room 2220, Rayburn House Office Building, Hon. John J. LaFalce (chairman of the subcommittee) presiding.

Present: Chairman LaFalce; Representatives Levin, Carper, Shumway, Wortley, and Grotberg.

Chairman LaFalce. The Subcommittee on Economic Stabilization will come to order.

In July, the House moved to rescind virtually all of the remaining funding of the Synthetic Fuels Corporation. Senate action on the rescission is now pending.

If accomplished, the rescission will effectively abolish the Synthetic Fuels Corporation, but it will also serve to immobilize the Nation's synfuels program—a program difficult to establish, complex to administer, but potentially critical to this country's energy future.

The circumstances have substantially changed since the Congress created the Synthetic Fuels Corporation in 1980. Congress was then responding to an energy crisis that persuaded many of the urgency of reducing our dependence on foreign oil. Both the crisis and the urgency have at least temporarily subsided.

Continuing declines in world consumption, continuing conservation and efficiency gains, and deregulation of most of the large U.S. oil and gas markets, and continuing increases in Third World oil production have dramatically brought down the price of oil. That condition is expected to persist for at least the next few years, but it is imperative that we not be shortsighted.

Synthetic fuels development remains a potentially vital part of our future energy program. We remain heavily dependent on imports for our energy needs and will become more dependent. Yet despite the time and money expended, we do not yet have commercial experience with coal liquids and oil shale that will allow us to use these abundant domestic resources to reduce that dependence.

The critical issues that we should be addressing are the appropriate nature of a synthetic fuels program and how such a program might be most effectively and efficiently administered.

Unfortunately, the issue has become simply the fate of the Synthetic Fuels Corporation. There is very good reason for that.

The Corporation has an unimpressive record and has been a serious disappointment to both proponents and opponents. The Corporation has been accused of mismanagement, poor project selection, conflicts of interest, and rampant cronyism. It has funded only two projects in its 5-year history, and has developed a reputation for being inappropriately generous with its funds.

Last year, the Corporation's program came to an abrupt halt because of the resignations of five of seven Board members due to conflict of interest scandals. Recent Corporation efforts to commit funds in virtual defiance of congressional reassessment of the existing program have only fueled congressional concerns about Corporation management.

Just last year the Congress agreed to substantial cutbacks in the synfuels program, yet the Corporation remains the subject of severe controversy and many argue that far more drastic changes are necessary.

The House action to rescind virtually all of the Corporation's remaining funding leaves the Corporation itself potentially moribund and the fate of a synthetic fuels program uncertain.

Authorization legislation which would abolish the Synthetic Fuels Corporation and transfer $500 million to a scaled-down program for financial assistance for commercial application of synthetic fuels technology in the Department of Energy is now before this subcommittee. This legislation would represent a substantial change in this country's alternative energy program.

Such a fundamental restructuring may, in fact, be necessary, but in the course of any efforts to redefine our policy goals we should maintain our commitment to a serious synthetic fuels program. Without authorizing legislation to establish the structure and policy parameters of a new program, we would be left with no mechanism for planning for our energy future.

Today's hearing will compare the goals and accomplishments of the Synthetic Fuels Corporation, explore the management and program problems it has experienced, review recent changes in the Corporation's strategy, and assess the potential of the program as currently structured to address this country's legitimate energy concerns.

We are pleased to have with us today both Mr. Edward Noble, the Chairman of the Synthetic Fuels Corporation, and our former colleague, Mr. Thomas Corcoran, Vice Chairman of the Corporation.

First, though, I would like to call on the ranking minority Member, Mr. Shumway, for any statement he may have.

Mr. SHUMWAY. Thank you, Mr. Chairman.

I would like to also welcome Chairman Noble and our former colleague, Tom Corcoran, and express my appreciation to both of them for being with us here this morning.

The Synthetic Fuels Corporation is at a critical juncture. The energy climate in which the SFC was established—that is, near hysteria over oil prices and supply, gasoline lines, rigid, nonresponsive Federal allocation schemes, and so forth—no longer exist, due in large measure to declining oil prices and increasing energy conservation efforts.

Since that time the country has also faced a mounting Federal budget deficit, which has necessitated on our part closer scrutiny of Federal credit assistance programs such as the SFC to ensure that they remain economically realistic.

Needless to say, it is primarily for this reason that the SFC and its projects have been put under the congressional microscope recently.

We appreciate the technical and economic difficulties that the Corporation has confronted in terms of high upfront capital costs for its projects and the public controversy stemming from the basic lack of consensus on appropriate U.S. energy policy.

I can appreciate the difficult position of the Board of Directors, who are criticized for either moving too quickly or too slowly to commit the SFC funds or for not adhering to the intent of the act.

Despite these factors, however, I believe there comes a point when we must reassess the program because we, as Members of Congress, must ultimately account to our constituents—the American public—as to how we spend their tax dollars.

Keeping this fact in mind, I look forward to the testimony today as the subcommittee fulfills its oversight responsibilities with regard to the reauthorization of the Synthetic Fuels Corporation.

Thank you, Mr. Chairman.

Chairman **LaFalce**. We will put the entire text of your testimony in the record at this time, Mr. Noble, and you may read it in its entirety if that is your desire or you may summarize it.

Please proceed.

STATEMENT OF EDWARD E. NOBLE, CHAIRMAN, U.S. SYNTHETIC FUELS CORPORATION, ACCOMPANIED BY TOM CORCORAN, VICE CHAIRMAN

Mr. **Noble**. Thank you, Mr. Chairman. I will put it in and read an abbreviated form of that statement if I might.

Mr. Chairman, members of the committee, I appreciate the opportunity to testify before you to discuss the achievements of the U.S. Synthetic Fuels Corporation today, the future of the program and its value to the country.

Having personally been at this for over 4 years, I am happy to be able to report that we are finally seeing some tangible results from the long years of effort and patience.

As this committee well knows, the Energy Security Act originally had an immediate goal of large volume production of synthetic fuels and also a broader purpose of long-term energy and hence economic security for the United States. Despite present energy conditions, this broader purpose remains equally valid today.

The country has enormous deposits of coal and oil shale and large deposits of tar sands and heavy oil. If converted to liquids and gas, these resources would provide a domestic energy supply equal to five to six times the reserve of the entire Middle East. These resources are the key to permanent energy security.

The question is: How can we best establish these resources for our future needs?

I believe we can do this with just a few well-designed, well-managed synthetic fuel plants which demonstrate key conversion technologies at commercial scale for the solid fossil energy resources. These few plants will prove up domestic coal and oil shale resources and can provide the equivalent of 730 billion barrels of oil from coal and 625 billion barrels of oil from oil shale. That is compared to 28.4 billion barrels of conventional oil reserves estimated recently by the Energy Information Agency.

Experience with a few pioneer plants will reduce technical and environmental risks and long lead times for future plants and will establish the infrastructure in the private sector. Then when we do need the production from synthetic fuels, industry will be able to build more efficient and environmentally proven plants on budget and in time to do the Nation some good.

Should another crisis arise, we will have an effective response in the private sector's ability to expand commercial synthetic fuel production efficiently.

This is what the debate is about. Is the country willing to assess the private sector now in developing a few commercial synthetic fuel plants at very limited cost over the next decade to assure our future energy and economic security?

Incidentally, the United States paid $60 billion for imported oil last year. That was when oil was supposedly cheap and imports low. This is what we are really talking about, making a very limited investment over the next 10 years to learn how to utilize our own domestic resources as a reliable alternative to imported oil.

The strategic petroleum reserve is our first line of defense in the event of a crisis, but synthetic fuels must be the long-term backup to the reserve.

A proven synfuels capability tells the rest of the world that the United States dependence on imports is a matter of choice and can be broken in just a few years whenever we choose to expand domestic synfuels production.

An R&D program, no matter how effective, will never establish the technology as fully commercial. There will always remain the problems of what we call scaleup. Only through the sustained commercial operation of a diversity of technologies for processing coal, oil shale, tar sands can the United States begin to develop synthetic fuels as a real alternative to oil imports.

To date, the Corporation has executed contracts with two projects.

The Cool Water facility is a combined cycle coal gasification plant which produces fuel gas and electricity, or electric generation. It was built on budget and on time. The technology allows utilities to add power in small increments of 100 to 200 megawatts.

The Cool Water plant has performed consistently above design estimates and is operating well within California's very strict environmental standards. The technology is proving to be the cleanest and most efficient method yet devised to burn coal. A dozen utilities are now considering replicating the technology.

The second project we are assisting, Dow Syngas, will produce fuel gas from coal for industrial use. The project is completing design and beginning construction. It is generally on schedule and substantially under budget. It has a good potential for replication in the energy intensive chemical and manufacturing industries.

These two projects, I might add, have addressed virtually all of the bituminous coal and most lignite.

A third coal conversion project, Great Plains, is also continuing in commercial operation under the aegis of the Department of Energy. Our board believes that the operation of the project will teach valuable lessons with respect to the more than 40 separate process streams integrated in this facility.

The Corporation is now working to complete negotiations with three additional projects, which will begin to provide technical as well as resource diversity in our programs. We notified the Treasury Department in August to reserve funds for awards to the Union and Seep Ridge projects, and notification for the Forest Hill project was made in 1984, when the letter of intent was executed.

The amendment under negotiation between the Corporation and Union Oil will incorporate the Union C fluidized bed combustion technology. This more efficient technology, which burns the char residue on the spent shale to produce additional heat energy, is expected to reduce the project's direct operating costs by about 25 percent.

This is a substantial second generation step. This technology will also eliminate the project's present problem with its spent shale cooling and removal system.

The proposed maximum obligational commitment by the Corporation in the amendment is $500 million, less than 20 percent of the originally agreed to $2.7 billion in the letter of intent. This downward revision epitomizes the redirection of the Corporation's program in line with the 1984 compromise legislation, particularly with respect to the removal of the production goals which were in the act.

An award of up to $184 million to the Seep Ridge oil shale project is also under negotiation. In contrast to the Union project which employs underground mining and surface retorting of shale, the Seep Ridge project demonstrates in situ technology for processing thin shale deposits. Project sponsors believe that this technology is also applicable to similar type shale deposits found extensively in the eastern part of the United States.

A third award under consideration is $60 million for the Forest Hill heavy oil project, which will demonstrate oxygen fire flood recovery of very viscous oil in deep deposits. This technology, still highly innovative, is expected to offer greater efficiency than steam recovery for certain types of deposits and to allow access to reservoirs not amenable to steam recovery.

Assuming these negotiations are successfully completed, the total commitment of the three projects over 10 years would be $744 million. This authority commitment, added to the $740 million already committed to the Cool Water and Dow Syngas projects, will result in five projects—two coal, two shale, and one heavy oil—a total commitment of $1.48 billion in contrast to Congress' original authorization of $88 billion or the $60 billion the United States paid in 1984 for oil imports, when oil imports were low and prices cheap.

While I do not want to imply that these five projects alone constitute a synthetic fuels program—an eastern coal project is notably missing, for example, as is a tar sands project—but even these few projects at this minimum level of investment will go far toward establishing knowledge and infrastructure necessary in the private sector to make synthetic fuels a viable alternative to imported oil.

We estimate that outlays by the Corporation for Cool Water, Dow Syngas, Union, Forest Hill, and Seep Ridge, through 1990 will be approximately $376 million. We estimate the net budget impact through 1990 of assistance to these five projects in real 1985 dollars will be approximately $136 million.

Total net outlays for these five projects over their useful lives is estimated to be around $1.35 billion. This takes into account the fact that price guarantee payments, payments to the projects, are taxable income.

Frankly, I think it is time to look seriously at the facts and the costs of all the energy options available to this country. We can make a relatively small commitment now to develop an alternative to oil imports and provide insurance against energy vulnerability, or we can say that there is no longer an energy problem and do nothing until the next crisis. If it comes, and we have no alternative in place, then I guarantee that we will again hear drum beat calls for massive new Government programs.

I supported the synthetic fuels compromise legislation of 1984, because I viewed it as an effective balancing of national needs, with redirection of the synthetic fuels program away from production requirements and the lower obligational authority, that is, a total of $7.375 billion was rescinded in two separate actions. These were appropriate responses to changing national circumstances.

Today, I would particularly urge those in the Congress and the administration who crafted the compromise less than a year ago, to allow the Corporation time and the authority to implement it. The program the Corporation is now putting in place, at a fraction of the original congressional authorization, constitutes a good initial start in developing a synfuels option to insure the United States against undue energy vulnerability.

If this synfuel option does nothing more than help keep world oil supplies plentiful and prices stable, then I would argue that it is an investment well worth making.

We must not fail to use this opportunity wisely, and we must not break faith with the private sector after it has invested so heavily. We must move ahead with this very reasonable, limited and necessary investment in the country's future.

Thank you, sir. I'll be happy to answer your questions.

[The prepared statement of Mr. Noble on behalf of the U.S. Synthetic Fuels Corporation follows:]

United States Synthetic Fuels Corporation
2121 K Street, N.W. Washington, District of Columbia 20586 Telephone: (202) 822-6600

Testimony of Edward E. Noble, Chairman
U. S. Synthetic Fuels Corporation
Before the House Subcommittee on Economic Stabilization
September 12, 1985

Mr. Chairman, Members of the Committee: I appreciate the opportunity to testify before you today. My testimony will discuss the achievements of the U.S. Synthetic Fuels Corporation to date, the future of the program, and its value for the country. Having personally been at this for over four years, I am very happy to be able to report that we are finally seeing tangible results from the long years of effort and patience.

In saying this, I want to reaffirm a pledge made often to this and other committees of the Congress: I will do my utmost to ensure that the Corporation never executes any contract before the project is ready and deemed fully to meet the purposes of the Energy Security Act. This is a point that needs emphasis because, frankly, much of the criticism in recent weeks is totally unfounded.

For several years the Corporation has withstood considerable pressure to support projects which we knew were not ready. More than once I was asked to explain why the Corporation had not made more awards. But the Board of Directors has always been firm that no award be made except on the maturity and merits of the individual project. This continues to be the Board's policy and practice.

Our process has been methodical and rigorous. When a quorum of the Board was reconstituted in December, in accord with agreements reached between the Congress and the Administration in the compromise legislation of 1984, the directors moved deliberately to develop a Statement of Objectives and Principles and a Business Plan reflecting the programmatic revisions of the compromise. The Board next began to review the letter of intent projects against these policy documents and to resume negotiations with project sponsors as appropriate. At the same time we were also resuming competitive solicitation activities for new projects in line with the Business Plan and attempting to negotiate an agreement satisfactory to all parties to keep the Great Plains project operating in the private sector. The Board was also drafting the Comprehensive Strategy Report which we submitted to the Congress in June, and extensive appendices to this Report which were recently completed and transmitted to the Congress. The Committee may wish to include the Comprehensive Strategy Report and its appendices in the record of this hearing.

As the Strategy Report was completed in June and the Great Plains negotiations were terminated in July, our Board and staff were able to concentrate their efforts on negotiations with the remaining letter of intent projects,* which had been given special status under the compromise legislation. We naturally looked to those projects closest to contract, and those which offered the greatest programmatic benefit. The Corporation had two coal projects under contract, and Great Plains was providing yet a third experience with coal conversion. Shale was a clear program need, however, and three of the remaining five letter of intent projects were in the oil shale category.

THE RATIONALE

As this Committee well knows, the Energy Security Act originally had an immediate goal of large volume production of synthetic fuels, and also a broader purpose -- the long term energy and hence economic security of the United States. This broader purpose remains equally valid today, although it has been forgotten by many amid the euphoria of seemingly plentiful oil and gas supplies. Nevertheless, the United States continues to be heavily dependent on imported oil, and with this dependence comes vulnerability, a vulnerability which can be tempered if we maintain the present program to develop a synthetic fuels capability.

The country has enormous deposits of coal and oil shale, and large deposits of tar sands and heavy oil. If converted to liquids and gas, these resources would provide a domestic energy supply equal to 5-6 times the reserves of the entire Middle East. These resources are the key to permanent energy security.

The question is how we can best establish these resources for our future needs. I believe we can do this with just a few well designed, well managed synthetic fuels plants which demonstrate key conversion technologies at commercial scale for the major solid fossil energy resources. These few plants will prove up domestic coal and oil shale resources that could provide the equivalent of 730 billion and 625 billion barrels of oil respectively, as compared to the 26.4 billion barrels of conventional oil reserves estimated by EIA in its most recent statistics.

Experience with a few pioneer plants will reduce technical and environmental risks and long lead times for future plants and will establish the infrastructure in the private sector. Then when we do need production from synthetic fuels, and we probably will before the end of the century, industry will be able to build more efficient and environmentally proven plants, on budget, and in time to do the nation some good. And should another crisis arise, we will be in a position to avoid the panicked public cries for government to "do something" on a crash basis; we will have an effective response in the the private sector's ability to expand commercial production of synthetic fuels efficiently.

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* The remaining letter of intent projects are Union, Cathedral Bluffs, Seep Ridge, Forest Hill, and Northern Peat; the Kentucky Tar Sands and Hop Kern projects have withdrawn and negotiations with Great Plains have ceased.

This is what the debate is really all about: Is the country willing to assist the private sector now in developing a few commercial synthetic fuels plants, at very limited cost over the next decade, to unlock a vast alternative to oil imports? Incidentally, the United States paid $60 billion for imported oil last year alone, when oil was supposedly "cheap" and imports relatively low. This is what we're really talking about: making a very limited investment over the next 10 years to learn how to utilize our own domestic resources as a reliable alternative to imported oil.*

Now some answer that we have the Strategic Petroleum Reserve in case of a crisis, and we need pursue only a synfuels R & D program for the future. The Strategic Petroleum Reserve is indeed our first line of defense in the event of a crisis, but synthetic fuels must be the long term backup to the Reserve. Moreover, if the country has a proven capability to produce synthetic fuels commercially and to bring efficient facilities on line relatively quickly (3-4 years versus 8-10 years), then we gain immediate leverage during a crisis. Such capability tells the rest of the world that United States' dependence on oil imports is a matter of choice and can be broken in just a few years whenever we choose to expand domestic synfuels production.

But to gain this leverage, we must first prove that we can produce synthetic fuels at commercial scale, which is the purpose of the present program. I'd like to comment briefly on the importance of "commercial scale," versus R & D experience. While you can "prove the concept" of a technology at, say, 10 or even 100 tons a day in a small research facility, when one goes to scale up, even by relatively small factors, one can encounter innumerable time-consuming and costly problems. Design, especially where solids are involved, as with synthetic fuels, cannot be perfectly modeled and extrapolated. There are unknowns in solids flow patterns, heat transfer rates, erosion and corrosion, and plugging and fouling. Only steady state operation at commercial scale for several years can eliminate the problems and establish a technology as fully commercial, and only through the sustained commercial operation of a diversity of technologies for processing coal, oil shale, and tar sands can the United States begin to develop synthetic fuels as a real alternative to oil imports.

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* For a detailed account of U.S. energy vulnerability, see: The Treasury Department's View of Oil Imports in 1975, 1979, and 1984: A Study in Contrasts. G. Henry M. Schuler. Dewey F. Bartlett Chair in Energy Security Studies: Center for Strategic and International Studies, Georgetown University, Washington, D.C., 1985.

THE PROCESS

The Corporation solicits and evaluates project proposals to determine if and when individual projects are sufficiently developed or "mature" to merit assistance. In approaching such determinations the Corporation has sought to keep responsibility for project development and operation fully in the private sector. Corporate sponsors are required to invest their own money for project design and to commit experienced management teams to a project before it can qualify for assistance. In effect, private sponsors are induced to spend their own money first, with the promise of Corporation assistance if they meet design, management, equity, and environmental requirements; this is the "letter of intent" concept.

The requirement for substantial private investment has caused projects to develop more slowly than if government were putting up all the money and taking all the risk. Of the more than 150 proposals the Corporation has received in its twelve solicitations, only about 10 percent were really serious projects. By that I mean that only about 10 percent of the projects applying to the Corporation had sponsors able and willing to invest up front money to develop the project's engineering design and to commit capable management and full equity, roughly 30 percent of estimated total project cost, necessary to give the project a reasonable chance of commercial success. The alternative would have been to sign projects early, before they had acceptable cost estimates and technical definition, which would surely have resulted in large cost overruns and abandoned projects, and substantial loss of government funds.

In contrast, a company that heavily commits its own resources is likely to stay with a project until it is successful. Union Oil of California is a good example. The start up of their oil shale facility has been slow and difficult, but having invested about $800 million of its own money, Union is determined to get the plant running. Nobody is walking away.

THE PROGRAM

To date the Corporation has executed contracts with two projects. The Cool water facility is a combined cycle coal gasification plant which produces fuel gas for electric generation. The technology allows utilities to add power in small (100-200 megawatts) increments. The project has a price guarantee of $120 million, of which slightly over $27 million has been paid out since the facility began commercial operation on June 24, 1984. Cool water has performed consistently above design estimates; it has produced slightly over four trillion Btu's of thermal energy, equivalent to about 690,000 barrels of oil or 465 million kilowatt hours of electricity. The project can supply approximately 50,000 residential customers daily.

Cool water is operating well within California's very strict environmental standards and is proving to be the cleanest method yet devised to burn coal.

The project has no liquid discharge, and the slag produced is non-hazardous. Sulfur removal problems encountered early in start up have been resolved, and sulfur removal efficiency is now 97 percent. In contrast, EPA's New Source Performance Standard for coal fired power plants is 90 percent removal. Nitrogen oxide emissions have averaged 0.59 lbs per million Btu, versus EPA's standard of 0.6 lbs per million Btu, and particulate emissions are 0.0013 lbs per million Btu, versus EPA's standard of 0.03 lbs per million Btu. A dozen major utilities are now considering replicating the technology.

The second project we are assisting, Dow Syngas, will produce fuel gas from coal for industrial use. It too has a price guarantee, for $620 million. Price support payments will begin only when the project reaches a specified level of commercial production, as defined in the contract agreement. The project is completing design and beginning construction; it is generally on schedule and substantially under budget. The Dow Syngas project has good potential for replication, particularly in the energy intensive chemical and manufacturing industries located along the Mississippi River.

A third coal conversion project, Great Plains, is also continuing in commercial operation, under the aegis of the Department of Energy. During its first year of start up operation the plant has produced 32,800 million SCF of gas, the equivalent of 5.4 million barrels of oil, and it has reached a product rate as high as 147.9 million SCF per day, almost 110 percent of nominal capacity. These are very impressive production levels for a pioneer process plant in its initial period of operation, and indicate that Great Plains, despite some problems with its environmental control technology, is an overall technical success. Our Board believes operation of the project will teach valuable lessons with respect to the more than 40 separate process systems integrated in the facility.

As mentioned earlier, the Corporation is working to complete negotiations with three additional projects, which will begin to provide technical as well as resource diversity in our program. The Corporation notified the Treasury Department in August of its intention to make awards to the Union and Seep Ridge projects; notification to reserve funds for the Forest Hill project was made in 1984 when the letter of intent was executed.

The Corporation is negotiating with Union Oil to amend the existing agreement for the Parachute Creek Oil Shale Program. Before discussing the amendment, however, I'd like to state for the record that Union continues to have a problem with only one system, the system for the cooling and removal of the spent shale from the retort. Otherwise, the balance of the plant has been started up and operated successfully, i.e., the mine and upgrading facilities and the retort itself all have performed satisfactorily for short periods after some initial problems were solved. The recycle gas furnace, recycle gas compressor, and other major equipment in the retort area have also operated satisfactorily.

The amendment under negotiation will incorporate the Union C fluid bed combustion technology envisioned in the letter of intent into the existing project. This more efficient technology, which burns the char residue on the spent shale to produce additional heat energy, is expected to reduce the project's direct operating costs by about 25 percent. This technology will also eliminate the problem with the shaft cooler/seal leg system, and enable the project to maintain steady state operation. Incorporation of the fluid bed combustion technology is relatively lower risk because of its similarity to commercially proven fluid catalytic cracker regenerator units widely used in the petroleum industry, and also to units used in the clean burning of high sulfur coal. The technology has also been run in several pilot plant operations for fluid bed retorting and combustion of shale, with capacities ranging to 350 tons per day.

Thus, the potential of the Union C technology in terms of efficiency and economics is large, yet the proposed maximum obligational commitment by the Corporation in the amendment is $500 million, less than 20 percent of the originally agreed to $2.7 billion in the letter of intent. This downward revision epitomizes the redirection of the Corporation's program in line with the 1984 compromise legislation, particularly with respect to removal of the production goals.

An award of up to $184 million to the Seep Ridge oil shale project is also under negotiation. In contrast to the Union project which employs underground mining and surface retorting of shale, the Seep Ridge project demonstrates in situ technology for processing thin, shallow shale deposits. Project sponsors believe that this technology is also applicable to similar type shale deposits found extensively in the eastern part of the United States.

The third award under consideration is for $60 million to the Forest Hill project under the heavy oil category of the Energy Security Act. This project will demonstrate oxygen fire-flood recovery of very viscous oil in deep reservoirs. The technology, still highly innovative, is expected to offer greater efficiency than steam recovery in certain types of deposits and to allow access to reservoirs not amenable to steam recovery.

Assuming these negotiations are successfully completed, the total Corporation commitment to the three projects over 10 years would be $744 million. This authority commitment, added to the $740 million already committed to the Cool Water and Dow Syngas projects, would result in five projects -- two coal projects, two oil shale projects, one heavy oil project -- with a total commitment of $1.48 billion, in contrast to Congress' original synfuel authorization of $88 billion, or the $60 billion the United States paid in 1984 for oil imports.

While I do not want to imply that these five projects alone constitute a complete synthetic fuels program -- an eastern coal project is noticeably missing, for example, as is a tar sands project -- but even these few projects at this minimum level of investment will go far toward establishing the knowledge and infrastructure necessary in the private sector to produce synthetic fuels commercially as a viable alternative to imported oil. Along with Great Plains these five diverse projects will provide experience with a variety of operating and environmental technologies for the processing of western bituminous and subbituminous coals, lignite, western shale, and heavy oil.

We estimate that net outlays by the Corporation for the Cool Water, Dow Syngas, Union, Forest Hill, and Seep Ridge projects through 1990 would be some $376 million. In real 1985 dollars we estimate the net budget impact through 1990 of assistance to these five projects would be approximately $136 million. Total net outlays for these projects over their useful lives are estimated to be around $1.35 billion. This takes into account the fact that price guarantee payments to projects are taxable income.

Frankly, I think it's time we started looking seriously at the facts and the costs of all the energy options available in this country. We can make a relatively small commitment now to develop an alternative to oil imports and provide insurance against energy vulnerability. Or we can say there's no longer any energy problem and do nothing until the next crisis. If it comes and we have no alternative in place, then I guarantee you that we will again hear drumbeat calls for massive government intervention in energy markets. Before we abandon too quickly a synthetic fuels program that is beginning to succeed, and for only a fraction of what Congress in the crisis atmosphere of 1979 thought it would cost, we had better take a hard look at what we could get in its place someday if we fail to use this opportunity wisely.

I supported the synthetic fuels compromise legislation of 1984 because I viewed it as an effective balancing of national needs. The redirection of the synthetic fuels program away from production requirements and the lowered obligational authority levels (a total $7.375 billion was rescinded in two separate actions) were appropriate responses to changing national circumstances. Today I would particularly urge those in the Congress and the Administration who crafted the compromise less than a year ago to allow the Corporation the time and authority to implement it.

I would also point out that this compromise itself contains an implicit further reduction in Corporation funds, in the provisions it stipulated for handling the $5.7 billion reserved for the letter of intent projects. When these are all brought to conclusion, then one-half of the funds remaining from the $5.7 billion will no longer be available to the Corporation.

Three letter of intent projects with commitments of $790 million, $543 million, and $100 million have been eliminated. As mentioned earlier, the Corporation is negotiating an award of $500 million, versus $2.7 billion, to Union, thus saving $2.2 billion. So while it's still too soon to give a precise dollar figure, it is obvious that several billion dollars will revert to the Treasury through this feature in last year's compromise legislation.

CONCLUSION

Ours is a rich and abundant country, and petroleum and natural gas will surely not run out in most of our lifetimes. But by early in the next century the United States will be heavily dependent on oil imports. The Corporation's program is intended to prove the commercial potential of our domestic synthetic fuels. Once this option is established, then the country will have a choice: to increase imports, or to expand synthetic fuel production, or to employ some mix of the two.

The program the Corporation is now putting in place, at a fraction of the original Congressional authorization, constitutes a good initial start to developing this synthetic fuels option or insurance policy for the United States. If this synfuels option does nothing more than help to keep world oil supplies plentiful and prices stable, then I would argue that it is an investment well worth making today. We must not fail to use this opportunity wisely, and we must not break faith with the private sector after it has invested so heavily. We must move ahead with this very reasonable and necessary investment in the country's future.

Chairman **LaFalce**. Thank you very much.

I am going to hold my questions until the end. I will first call on the ranking minority Member, Mr. Shumway.

Mr. **Shumway**. Thank you, Mr. Chairman.

Mr. Noble, just in the last few sentences you spoke there, you said that one of the justifications for this problem would be a continued effect on the world's oil prices. In fact, if oil prices are now down, do you ascribe to the Synfuels Corporation any credit for that or reason for that, or is that something that's happened outside of your influence?

Mr. **Noble**. No, sir. I don't ascribe or attribute any credit to the Synthetic Fuels Corporation. What I would say is that the lead time in developing commercial plants is tremendous. Right now, it would take 8 to 10 years to get even a few plants out there. We're already a long way along. With the experience learned from just these few plants, we can shorten the lead time to 3 to 4 years. And exporting countries might think very seriously before they'd jack their prices up unreasonably, in a crisis or an interruption of supply, if they look over here and they see that we've got a 200- or 300-year supply. We've already got a few plants out here operating. If we converted totally, we wouldn't need them for another 200 or 300 years.

That's what I'm saying we can do in the future, and we're just about there.

Mr. **Corcoran**. Congressman, I wonder if I could add to what Mr. Noble has said.

I think that if you take the opportunity to read the Comprehensive Strategy Report which was required by the Congress, which we submitted on June 30 of this year to the Congress and to the administration, you will find that one of the factors that we do address is what kind of moderating influence the existence of a synthetic fuels capability would have on the pricing decisions of the OPEC cartel. We all recognize, as you said, that the cartel does not control the marginal supply of oil in the world market today. Therefore, it does not have the impact on pricing and supply that was felt back in 1979, when this subcommittee, I might say parenthetically, wisely addressed the question of what kind of a synthetic fuels program would be desirable.

I didn't serve on the Banking Committee or the subcommittee at that time, but I was proud to have voted for the product of that subcommittee action, because I think that the existence of that kind of program, particularly in terms of size and scope is relatively close to what the program has turned out to be, as a result of the wise congressional action late last year.

But one of the points that we make is that within the cartel, when they are making their pricing decisions, the radical elements within the cartel have to be somewhat influenced by the fact that we do have a synthetic fuels capability and, therefore, they will not insist upon the kind of extreme pricing that we saw in the world market back in 1979, and also with the first energy shock back in 1973-74.

So there is no way we would want to argue that we would be taking sole credit for the moderation of consumer prices today. But on the other hand, I think it can be argued, as we argue in this comprehensive strategy report, which I would call to your attention, that the significance of the capability we are now developing, does have a moderating influence and does enable the more moderate members of the cartel to use that argument vis-a-vis the radicals that want to take advantage of an extreme situation.

Mr. **Shumway**. Thank you. I know that lower oil prices and higher interest rates, among other factors, have made synthetic fuels projects look less attractive to private investors. I am wondering if that fact, which really lies outside of our control—I think we would concede that—make government assistance more important at this point? On the other hand, does the withdrawal of private companies from synfuels projects mean that the Government should also withdraw? Is there some reason there that we should be motivated by as well, as oil companies have pulled out of these commitments?

Mr. **Noble**. Let me answer it this way. From the very beginning, I have personally said that we didn't need massive numbers of plants. I have said that what we do need is just a few plants that take the scaleup risks out of the equation. You can do R&D forever, but you still will have a massive lead time to get the scaleup risks out. Since we knew and felt that we only needed a few plants, and it was very obvious in the beginning that while we had—we evaluated well over 150 plants projects, and very few of the corporations really had strategic reasons for investing in them. They were investing because the Federal Government was involved, and a lot of them were used to getting in the line, so to speak. We zeroed in on the people and the projects that had a strategic interest for putting their money into synfuels, that is, some reserves or technology that they had already invested money in, and they wanted to invest more into the future.

So that is what we're down to now, with the people who have the strategic long-term interest in synthetic fuels. I think this is a sound and an economical way to do it. And I think that's sort of proven out, in spite of a lot of our folks that are mad, because we didn't go fast enough or mad because they didn't want it at all.

We are down to a few projects, and each of these people have strategic interests in what they're doing.

Mr. **Shumway**. I know both of you gentlemen, and I know both of you are as concerned as I am about the status of the Federal budget. Even though the Synthetic Fuels Corporation may not be subject to the normal congressional authorization and appropriations process, I'm just wondering how we can agree upon some prioritization here for the justification of some $7.9 billion for the Synthetic Fuels Corporation. You know that is the figure we throw around.

What response would you have to that, Mr. Noble?

Mr. **Noble**. Well, sir, a lot of folks are talking as if they want to help cut the budget, but they are talking about cutting money that we don't intend to spend anyway.

As I've just outlined here, we've taken a massive program of $88 billion, and are saying to Congress that we can do that for just a fraction of that. The five projects that we are talking about literally come to $1.48 billion and that is in today's dollars. This money will be spent over the next 10 years.

As I said in my statement, as spent dollars that will relate to about $567 million in net present value. I don't know where else Congress has ever authorized an $88 billion program and has done it for less than 2 percent.

We would like to see one or two more technologies to really round out the program, but these five projects—two coal, two shale, one heavy oil alone—are respectable. And as I mentioned—and it wasn't a political statement—it would be good to have an eastern coal project, because it is a massive resource that we are not addressing at this moment. We've also been accused of being a spendthrift. But we've operated on 21 percent of the authorized congressional appropriation for our budget. I don't know anybody else that has even come close to that figure.

Mr. SHUMWAY. Since you've been able to keep costs down——

Mr. CORCORAN. I wonder if I might respond to that question, as well.

Mr. SHUMWAY. Could I just follow up, and then you can respond. Since you've been able to keep costs down that way, is there any way that we can keep the major thrust of the Synfuels Corporation intact, but may still collapse the Corporation and administer the program through the Department of Energy as a categorical grant program or something of that sort, other than the status, the organization that we have had thus far, which has been very controversial?

Mr. NOBLE. Yes, sir, you could. But in my judgment it would be much better and logical to let us sign these few projects and then collapse the Corporation. I outlined the program, which now is a public document, to Mr. Regan a few weeks ago. And I think we also have a moral obligation to complete this, because unlike a lot of other programs we've forced the sponsors to spend a lot of money upfront in design and management in getting ready. I think if we sign those projects I mentioned—you could have one or two more projects—we could have a very good, very solid program. And then Congress should take a look at it.

I think it would be better to leave it as an independent agency. When we first came here there was a lot of demand to spend money quickly. But those projects were so unprepared and so underdesigned; the most fairly designed, by far, projects, were the three that DOE signed off on. One of those was not even ready, and I strongly opposed it, because it was not ready, designwise, and we didn't have this need to have to spend it or lose it, so to speak. We could let these projects mature with their money rather than Uncle Sam's, and frankly, I think that in retrospect, we've done the right thing. We are now ready to have a good program. And these two we have would make a good nucleus.

Mr. CORCORAN. Mr. Chairman, if I might, I'd like to go back to the question that Congressman Shumway related. I'd be happy to respond to the other question as well, but first of all, with respect to the $7.9 billion, I think that there is understandably a failure to fully appreciate the way in which that new program was established by Congress late last year. No. 1, there was a sizeable reduction in money of about 45 percent. No. 2, there was, as Mr. Noble has pointed out, the fortunate elimination of the production goals, because that was driving the process toward the huge projects for meeting production goals, as required by the original act, such that by 1987, there would have to be 500,000 barrels a day of synthetic fuel produced. That was the responsibility of the Government agency, the Synthetic Fuels Corporation, to see that that was accomplished. And by 1992, the production level was to have been 2 million barrels a day of synthetic fuel.

Well, today we import a little over 4 million barrels a day, so we would have, under that original scheme, half of it coming from synthetic fuels, which is completely unrealistic. But what the Congress did, in my judgment, was quite prudent, not only with respect to the change in the production goals to affect the policy decision on projects and not only with respect to reducing the amount of money, but also with respect to providing an automatic mechanism, so that any savings could be recaptured by the Government.

What we have, as Ed Noble has pointed out, is that, for example, with respect to the letter of intent projects, if you'll recall, in that legislation, Congress and the President of the United States specified that for the eight letter of intent projects, which had a stated value of $6.8 billion, there would only be $5.7 billion available. And then with respect to that earmarked account, if you will, any savings, any reduction in the eight projects below the $5.7 billion, would find 50 percent of the savings reverting to the Treasury. In effect, an automatic rescission. For practical purposes, what we have done since the reconstituted board took office on December 13, 1984, is to substantially restructure those projects, such that three of the projects have been eliminated already. One with a price tag of $790 million. The second one with a price tag of $543 million. A third one with a price tag of $100 million. That's $1.433 billion, 50 percent of which, we will return to the Treasury.

Second, with regard to the so-called Parachute Creek project, which Mr. Noble had discussed which was $2.7 billion, that was part of the $5.7 billion earmarked funds. We have already made a decision to reduce that letter of intent project at a value of $2.7 billion to $500 million. That is less than 20 percent of the original letter of intent. That is a savings of $2.2 billion.

Now, if I were still here in the Congress rather than my successor John Grotberg, I would be issuing press releases about saving the taxpayers of the United States $2.2 billion on one project.

Now, if you add $2.2 billion to $1.43 billion and subtract 50 percent, you get a big return to the Treasury. So I think that when we examine the law that the Congress in its wisdom adopted late last year and the President of the United States signed that we can, I think, respond, Congressman Shumway, to your point, and that is to say, look, this $7.9 billion, based on the actions of the reconstituted Board, is not going to be spent. It is going to be a fraction of that, as Ed Noble has said.

Mr. SHUMWAY. Thank you.

Chairman LAFALCE. Mr. Carper.

Mr. CARPER. I believe it was Casey Stengel who said never make forecasts, especially about the future.

I am going to ask you, Mr. Noble, to forecast for us what is likely to happen in the Senate on the future of Synfuels Corporation.

Mr. NOBLE. I don't know about Tom. He has been here a lot longer than I have. But I don't make forecasts on legislation.

If we do what we are doing, we hope we can do that right. I will let Tom make the forecasts.

Mr. CORCORAN. Well, Congressman, as Ed Noble has indicated, it would be very speculative to suggest what the Senate might do. As you well know, I thought the Senate could have been improved——

[Laughter.]

Mr. CORCORAN [continuing]. Two years ago.

But in any event, I think that the only time in any formal, official way that we have had an opportunity to learn from those Senators, particularly those on the Energy and Natural Resources Committee, what their response is to what the reconstituted Board has been doing to comply with the new directives of the Congress of the United States and the President of the United States as of October 1984, we heard earlier this year during the confirmation hearings for Paul McAvoy, Eric Reichl, and myself, who were the three new Board members appointed by the President, using his recess authority, and subsequently confirmed after renomination to the Senate earlier this year.

In those hearings I think it was clear that a strong majority of these Senators, who have had a longtime interest in the program, are very pleased with the more realistic approach that we are taking in response to congressional guidance to restructure the program, to downsize the program, to get, if you will, the kind of benefits from these projects in terms of experience, data, environmental knowledge about these projects first, before we go to full-scale commercial production, before we go to an industry, which we want to be expanded by the private sector, not by Government.

And I think, based on that hearing and based on informal discussions with the Senate, that there continues to be a good deal of not only interest but support for a synthetic fuels program, and one which will give us the capability to expand in time of need.

Mr. CARPER. Let me ask a less speculative question, in fact, a couple of them.

First of all, what percent of U.S. oil consumption is from domestic sources? Roughly, what percentage of U.S. oil consumption is from domestic sources?

Mr. NOBLE. We are presently importing or consuming—well, all of our production virtually we are consuming as far as liquids are concerned, and we are importing about one-third, about 30 percent, of our liquid needs at this time.

Mr. CARPER. Two-thirds come from domestic production?

Mr. NOBLE. Yes, sir.

Mr. CARPER. What percentage comes from OPEC sources?

Mr. NOBLE. OPEC right now, I believe, is about 80 percent of our imports.

Now, bear in mind—and here is a point that you need to look at—Mr. Schuler I think testified here yesterday, and I believe I am remembering his facts correctly, that about 80 percent of the excess capacity is in the Middle East and a substantial amount of that is in one country, Saudi Arabia.

That is why I say that with just a few plants—let's just say that the Soviet Union or somebody hostile to this country took that over totally—we have two options: A rapid deployment force, which incidentally——

Mr. **Carper.** Excuse me, Mr. Noble. I don't have much time left, and I wanted to ask the questions that I wanted to ask; 80 percent from OPEC sources sounds entirely too high.

Chairman **LaFalce.** He said of imported oil, is what he said.

Mr. **Carper.** You are saying that 80 percent of our imported oil comes from OPEC nations?

Mr. **Noble.** Let me supply it for the record to be exact because we are not as dependent on the Middle East as we used to be, and how much of that is OPEC and how much of that is imported from non-OPEC countries I am not sure.

Mr. **Carper.** In terms of years, approximately how long will those oil reserves be expected to last?

From time to time, you see, we have 20 years, 200 years of coal and how many years of oil?

Mr. **Noble.** It is not only how long they last, but who has control of them and, if they have control of them, how much are they going to charge, because we are going to continue to import oil.

Mr. **Carpfr.** But are you talking that we have 30 years of known oil reserves or 40 years, and that sort of thing?

Mr. **Noble.** In the United States?

Mr. **Carper.** No, in the world.

Mr. **Noble.** We will supply that for the record to be exact, but the point I am making is that it also depends on whose hands that is in to decide what the price is going to be.

[In response to the request of Congressman Carper, the following information was submitted for the record by Mr. Noble:]

Information Submitted
for the Record
Hearing of the Economic Stabilization Subcommittee
Chairman LaFalce

September 12, 1985

Source: Energy Facts 1984, Energy Information Administration, Washington: May, 1985
All data is average for 1984.

U.S. Crude Oil Production	8.757 million bbl/d
Net U.S. Imports of Crude & Products	4.660 million bbl/d
U.S. Domestic Consumption of Crude & Products	13.417 million bbl/d
Imports as a Percentage of Consumption	34.73%
Domestic Production as a Percentage of Consumption	65.27%

U.S. Imports of Crude & Products from OAPEC*	.809 million bbl/d
U.S. Imports of Crude & Products from OPEC	2.023 million bbl/d
U.S. Imports of Crude & Products from OAPEC as a Percentage of Net U.S. Imports	17.36%
U.S. Imports of Crude & Products from OPEC as a Percentage of Net U.S. Imports	43.41%

The World Crude Oil Reserve as of January 1, 1984 is approximately 670 billion barrels, according to the Energy Information Agency. Various other sources have claimed that world crude production will peak and irrevocably decline in thirty to forty years.

*The Organization of Arab Petroleum Exporting Countries that imposed the 1973-1974 embargo and production curtailment. It includes Algeria, Libya, Saudi Arabia, United Arab Emirates, Iraq, Kuwait, and Qatar.

Information Submitted
for the Record
Hearing of the Economic Stabilization Subcommittee
Chairman LaFalce

September 12, 1985

Source: Petroleum Supply Monthly, June, 1985,
Energy Information Administration
Washington: August, 1985
All data is average for 1984.

U.S. Production Liquefied Petroleum Gases (LPG)[1]	1.697 million bbl/d
U.S. Imports of Liquefied Petroleum Gases	.195 million bbl/d
Imports of Liquefied Petroleum Gases as a Percentage of Consumption	11.5%
Domestic Production as a Percentage of Consumption	88.5%

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[1] Includes ethane, propane, normal butane, and isobutane. LPG data represents subtotal of Crude Petroleum and Products data. Petroleum products are obtained from the processing of crude oil (including lease condensate) natural gas and other hydrocarbon compounds. Petroleum products include unfinished oils, LPG, pentanes plus, aviation gasoline, naptha-type jet fuel, kerosene-type jet fuel, kerosene, distillate fuel oil, residual fuel oil, naptha less than 400F endpoint, other oils over 400F endpoint, special napthas, lubricants, waxes, petroleum coke, asphalt, road oil, still gas and miscellaneous products.

Mr. CARPER. Mr. Noble, how long have you been Chairman of the Synfuels Corporation?

Mr. NOBLE. Four and a half years.

Mr. CARPER. Any idea how much has been spent by the Corporation to date?

Mr. NOBLE. Yes, sir, I sure do.

Mr. CARPER. How much?

Mr. NOBLE. I would ask you to make a guess because I was challenged a few months ago about the massive amounts of money that we have spent.

Mr. CARPER. I would say a lot less than $88 billion.

Mr. NOBLE. Yes, sir; I would have to doublecheck myself, but I think we have spent something in the range of $70 million, but I will supply the——

Mr. CARPER. Has actually been spent?

Mr. NOBLE. That is what has gone out to the Cool Water project, in addition to our operating costs.

Mr. CARPER. Total outlays to date?

Mr. NOBLE. $52 million. I overstated it.

Mr. CARPER. What do we have to show for that $52 million?

Mr. NOBLE. You have a lot, sir. We have two projects that have been signed, the first one on budget, on time, producing gas, burning coal environmentally more clean than ever devised before and more efficiently, by far beating all the environmental standards required.

The second project is under construction, at this point considerably under budget and on schedule, maybe a little ahead of schedule. This is almost unheard of in first-of-a-kind plants. The reason is because we have taken the time to force these sponsors to do the design work necessary to estimate the cost accurately before they start.

Mr. CARPER. Why do you think congressional support for your work for the Corporation has dissipated so badly?

Mr. NOBLE. I think because we have probably done a very poor job of telling people what we really have done and I will take the blame for it. When there was a big demand, we did not just sign-off on projects. We refused until sponsors got their plants designed and had management in place. In the case of these big projects that means hundreds of millions of dollars in design alone. It means several hundred people involved in the really big projects; a management team in place; their equity in place. These things really make projects. I have never built billion dollar projects, but I have had some responsibility for spending money on this sort of thing. The only way you can do it well—whether it is a house or a synfuel plant—is to take the time and have the design in place, have the management in place. Then you really know that those projects have a pretty good chance of being on budget.

That is what we have done. Maybe I have done a very poor job of explaining it to Congress and a lot of other people. But the facts are now coming to light—that what we have done so far has been very prudent and very deliberate, and I think has saved the taxpayers a heck of a lot of money.

Mr. CARPER. Speaking of time, I think mine has expired. Thank you for being so generous with it, Mr. Chairman.

Mr. **Noble**. I apologize for being so longwinded.

Chairman **LaFalce**. Mr. Wortley.

Mr. **Wortley**. Thank you, Mr. Chairman.

It is nice to have you gentlemen with us this morning, particularly our former esteemed colleague, Mr. Corcoran.

Let me go back to Mr. Noble. Did I understand you correctly a few moments ago? You said that the Synfuels Corporation had only spent $52 million.

Mr. **Noble**. That is correct, and that includes payments to the cool Water Project.

Is that correct?

Mr. **Wortley**. No; the $52 million.

Mr. **Noble**. That is for operational expenses. That represents about 21 percent of what was actually authorized by Congress for us to spend.

Mr. **Wortley**. The $52 million is operating expenses for the Corporation exclusive of grants?

Mr. **Noble**. That is correct. I thought that figure was low.

Mr. **Wortley**. Let's get all our numbers in a row here.

Your overhead expenses for synthetic fuels has been $52 million over the last 5 years?

Mr. **Noble**. That is correct.

Mr. **Wortley**. Now, how much have you spent in grants?

Mr. **Noble**. It is wholly in price supports. They are not grants. There is a big difference. They are price supports. The money goes out over the life of that project.

I believe this one—and I would have to check—but I think the contract has profit sharing that goes out 15 years. It is not something written in the law. It is something we negotiated.

Mr. **Wortley**. You say these are not grants?

Mr. **Noble**. Price supports. We hope to get some of it back if prices go up any time as much as 2 percent over inflation during the next 15 years.

Mr. **Wortley**. In other words, Cool Water has turned out 4 trillion Btu's of thermal energy?

Mr. **Noble**. Yes, sir.

Mr. **Wortley**. And they are selling that in the market. So I understand correctly, the difference between what it costs them to produce that and what they have to sell it for, you pick up the difference; is that correct? This is like the dairy program?

Mr. **Noble**. Yes, sir.

Now, let me say this: When we negotiate these contracts, the amount of the assistance is defined, and if we do not think that that plant will operate after the assistance is over, then we won't sign the contract.

Now, unless oil is down at $10 a barrel and it probably would not be, but at any reasonable price for oil in the next 10 to 15 years these projects will continue to operate after the assistance is over. The assisted price is to help sponsors get some of the capital costs back. If synfuels were absolutely commercial at this point, projects wouldn't have to have any assistance.

Mr. **Wortley**. Now, are you making an investment in the capital plant as well as the operating subsidy?

Mr. **Noble**. No. With a price guarantee sponsors know that they are going to have a certain price. Part of that will be profits for them, but it is a difference, as you just pointed out.

Mr. **Wortley**. What sort of a profit do you guarantee the return?

Mr. **Groelinger**. First of all, I think one important feature is that we do not guarantee a profit to anyone. What we are doing is assuring that for each unit of volume produced there is a certain amount of revenue. That does not take away the operating risks. That leaves the operating risks with the sponsors. So we are not at all guaranteeing a profit.

We do establish in our analyses certain levels of target returns that we utilize to establish levels of support and total authorization, and we are usually looking in the range of returns on equity of approximately 20 percent, plus or minus.

Chairman **LaFalce**. Excuse me, would the gentleman who just spoke identify himself?

Mr. **Groelinger**. Jim Groelinger, vice president of finance for the U.S. Synthetic Fuels Corporation.

I apologize.

Chairman **LaFalce**. Thank you.

Mr. **Groelinger**. But if I might just conclude, we do not guarantee that return for the sponsor. There is a real risk that they would have lower returns or potentially negative returns.

To the extent that the operating performance of the project is such that it would increase the returns substantially, we will then have in the contracts what we call usually cash-flow sharing provisions, whereby to the extent that project performance is better than expected that better performance is shared between the sponsors and the Government.

Mr. **Wortley**. But the 20-percent return on capital investment—is that really 20 percent?

Mr. **Grolinger**. Only on equity investment. We run these economics utilizing the actual cost of debt funds that will be in the project. We do not provide the sponsors with a return on those debt funds. We only look to provide a return on the real equity that they have invested. I might also add, equity on a net after tax basis.

Mr. **Noble**. To the extent that plant is not built on budget or does not operate up to standard, they get less return.

Mr. **Wortley**. Congress has authorized and appropriated $17 billion for the Synthetic Fuels Corporation. Is that $17 billion actually in your hands, or is that a drawdown from the Treasury, as necessary?

Mr. **Noble**. First of all, we've had a number of rescissions, so we have way less than that at this time. But we actually get a set-aside from the Treasury after we negotiate in the final stages; then we notify the Treasury. We notify the Treasury that we will commit these funds, but not until it's virtually ready to be committed. Then, we actually draw it from the Treasury.

Mr. **Wortley**. So you do not control the funds yourself; you draw them as necessary?

Mr. **Noble**. That is correct, yes, sir.

Mr. **Wortley**. Jack Anderson's column, Mr. Noble, doesn't believe that.

Mr. CORCORAN. Mr. Chairman, I wonder if I could respond to a question before we get to our friend, Jack Anderson.

Mr. WORTLEY. You're the witness, you know. I'm in the controlling position.

Mr. CORCORAN. Right. I'm taking you at the end of the 5 minutes. But, very briefly, on the question of investment of Government dollars in the Cool Water project, I wasn't involved in that project, as you well know. It was brought under contract a few years ago.

But it's interesting to note.

Mr. WORTLEY. Would you have supported that?

Mr. CORCORAN. I would have supported it then; I support it now because it's exactly the kind of project that should characterize the Synthetic Fuels Corporation. It's a small project. It's a project where you have a number of other people involved. You've got EPRI, which is the research institute of the utility industry. You've got Bechtel Corp. You've got Texaco. You have an investment there because it's their gasifier that's converting the coal into the fuel gas, which is then used to produce electricity. You've got Southern California Edison, which is using this electricity every day to heat the equivalent of 50,000 homes in California.

So we are producing, and the industry is responding. Today, there are approximately a dozen other utilities that are negotiating with Texaco to either lease or enter into contracts in some way, to use this technology; because not 20 years from now, and not 50 years from now, but soon because of their demand requirements, these utilities recognize that they need to use this kind of environmentally acceptable technology for utilizing coal to produce electricity.

And this is a key point, because of our involvement, they are going to be able to build their successor facilities for a whole lot less money than the original investment. That's the notion of a pioneer plant. It's always more expensive, but when you get into these successor plants, and the Rand Corp. has shown that, on average, you are getting, depending on the creativity and ingenuity of the technology, the savings in those successor plants of 20–30 percent.

Mr. WORTLEY. Energy does not sell for the same rate in all parts of the country, nor even within the State of New York. What Con Edison charges for gas and electricity is different from what Niagara-Mohawk charges in upstate New York.

What, in terms of the Cool Water project, the energy that they sell, where does that stand in the marketplace on cost?

Are they selling below what most energy is selling for? Or, are they selling it above?

Because you are subsidizing the difference.

Mr. CORCORAN. Congressman, we'd have to check into that to give you a precise response.

Mr. WORTLEY. That would be interesting to know, because I'm wondering if you are subsidizing 50,000 homes in that district with low cost energy; or are they marketing their energy at the so-called going rate?

Mr. CORCORAN. From the standpoint of the consumer, the consumers in California in the service district of Southern California

Edison, are paying what the State PUC has approved as the allowable rate. So it's not below market to the consumer.

Mr. WORTLEY. How does it stand in terms of the rest of the marketplace in California?

Mr. CORCORAN. It is, I would assume, competitive with the rest of the marketplace. But we will check that for the record.

[In response to the request of Congressman Wortley, the following information was submitted for the record by Mr. Corcoran:]

United States Synthetic Fuels Corporation
2121 K Street, N.W. Washington, District of Columbia 20586 Telephone (202) 822-6600

September 27, 1985

Honorable George Wortley
Representative in Congress
Washington, D.C. 20515

Dear George:

During our recent hearing before the Economic Stabilization Subcommittee, you asked what effect, if any, financial assistance provided to a synthetic fuels project, such as Cool Water, might have on rates paid by individual public utility customers.

As a general rule, projects assisted by the Corporation sell their output at prevailing market prices for whatever product is produced. For example, shale oil produced by a synthetic fuels project typically would be sold to a refiner at a price reflecting other crude oil purchases with normal industry adjustments for particular quality characteristics. In the case of Cool Water, Southern California Edison buys electricity (which is generated using the project's synthetic natural gas production) from the project on an "avoided cost" basis as determined by the California Public Utilities Commission, i.e., the cost which Southern California Edison would incur if it utilized alternative conventional energy sources. Thus, the price paid by the ultimate electric consumer is no different from what it would be if Southern California Edison instead generated the additional electricity using, for example, natural gas.

I hope this addresses your concern as to the market price obtainable for synthetic fuels. Please let me know if you wish to have any further clarification on this matter. With best wishes, I am

Sincerely,

Tom Corcoran
Vice Chairman

Mr. WORTLEY. Could Mr. Noble just respond to the Jack Anderson column yesterday? What did you mean basically when you threatened to quit and go public if your plan was not accepted? Can I read one paragraph?

It says:

> Meanwhile, Noble himself appeared ready to call it quits. He wrote the White House Chief of Staff, Don Regan, recommending that synfuels finance a few additional modest projects and then fold. He even threatened to quit and go public if the White House rejected his plan.

Mr. NOBLE. Let me tell you now, taking consideration of this, I first started talking to the White House staff in early June when Congress was talking about doing away with, abolishing the Corporation, for what I felt were all the wrong reasons.

I felt that we had done a very prudent and a very deliberate job at the Corporation of not just going out and spending money pell-mell when everybody was hollering for us to.

We've been trying to get a few projects really ready, so when they were brought to construction, they would have a reasonable chance of being on budget and on time.

I wanted to get out ahead of the curve, Congressman, so to speak, because I thought it would be a crime for people to shut this Corporation down for all the wrong reasons, when we were this close to success.

As I said in that letter, I thought that since we did have a basic program with a few good projects that were ready, we could get out ahead of the curve, so to speak, since we were very close to having the few plants that were needed. And why didn't the administration take advantage of getting ahead of the curve and trying this program that we could eventually leave in the private sector? And taking out the lead time, which is all we're doing, taking out 6 to 10 years of lead time in these few plants, so that if you have a crisis—and I hope we never have one, but will have an insurance policy, and we're virtually there.

And not to shut it down now for the wrong reasons, that was the whole thrust of my letter. Let's get ahead of the curve. We have the program virtually in place and we've got it in place for the right reason, at a lot less cost. So let's say so. That was my point.

Mr. WORTLEY. You said you don't want to quit now for the wrong reasons. What's the right reason to shut down the Synfuels Corporation?

Mr. NOBLE. My thinking is that you do a few plants and, as I said, we're very close. Do a few plants that demonstrate that we can, on a commercial scale, utilize our vast coal reserves, which are three times the oil reserves in the Middle East when converted to liquids and gas. Oil shale, tar sands and heavy oil are twice the reserves in the Middle East, when converted to gas.

If you had just a few plants that take on these scaleup risks, something R&D can't do from now on. I'm not knocking R&D, but you can't take out the risks of scaling up the environmental technology without going to commercial scale.

I'll give you just a quick example, which I've given before with the SASOL plant in South Africa. When they built their first plant, when they started in 1955, I think it was, they were using technology that the Germans had run their whole war industry on for 6 years.

The problem was their plants were anywhere from 10 barrels a day, to a maximum of about 200 barrels a day. SASOL built one at 5,000 barrels a day, knowing darned well that the R&D technology had been done in dozens of plants. But it took them 3 years after finishing it, working 24 hours a day, 7 days a week, to get the first drop of production out of it; and 6 years before they got it up to design levels of production. This was after they finished it. A few years later, they built No. 2, which was just four times bigger. That's not a very big scaleup. It took them 18 months versus 6 years to get No. 2 to the assigned level.

The third one, took just a few months to get up to the design level of production, plus they made a lot of improvements in that plant.

These are the kind of things that we need to get out of the process, and it would be much less expensive if we do it with just a few plants now, versus waiting to have 30–40 plants and all have big cost overruns and have the Government do it all, because plants cost $1 billion $2 billion a copy. And there's only one or two companies, if they wanted to, that afford that kind of a job.

Whereas, if you have these few plants, the risk is taken out. Not only will the bankers loan the money, because they know it will work when they get through, but four or five of them can go together and maybe build one as a consortium, or whatever, and you won't have to have the Government in it at all.

That's what we're seeing now.

Mr. WORTLEY. Thank you, Mr. Chairman, for giving me the extra time.

Chairman LAFALCE. Before I call on Mr. Grotberg, Mr. Corcoran, yesterday's Jack Anderson column on the Synfuels Corporation; the story was that was one of the primary reasons for Mr. Grotberg. Is that true? [Laughter.]

Mr. CORCORAN. I wouldn't be that foolish.

Mr. NOBLE. Let me say about Mr. Anderson that I don't know of but one or two facts that he's ever gotten right, and it doesn't pay to correct him because it just goes unheeded. His facts are very seldom even close to right.

Mr. GROTBERG. Thank you, Mr. Chairman. Thank you, Tom Corcoran, my predecessor, and Mr. Noble.

I have an opening statement that dovetails a little bit with some of your very good remarks, Mr. Chairman, but I've been down this road on so many subjects in the last decade that it's almost disgusting.

You read Jack Anderson. Did you read that Sheik Yamani had a runny nose yesterday and blew the world market, money and everything else.

Somebody thought he died. You know, the only moderate left in the OPEC field is one man named Sheik Yamani?

That was this morning's news. And we're well home on this thing and the $88 billion is a dream number that no longer exists. We've got some things that are about ready to work. We're going to need what this thing is about before we will need SDI and star wars.

Physically, the world will need it. America will need it. This is nickels and dimes compared to the first shot we're giving to that. We just felt so lucky in Illinois to get a $10 billion computer put into the University of Illinois, so we can think faster than anybody in the world.

And here, we're actually cranking out some oil and some gas and some liquids and some Btu's. I happen to represent Illinois, as did my friend, Tom Corcoran, the coal capital of the world, for goodness sake.

I am well aware of the North Dakota lignite and soft coal problems. To throw this baby out with the bath, Mr. Chairman, would be wrong. Where did he go? [Laughter.]

I was about ready to make a brilliant quotation of his.

Mr. LEVIN. We'll make sure it's in the record.

Mr. GROTBERG. Unless you want to cut me off, whoever is taking over the Chair, I would continue. But, Mr. Corcoran, you sat where I'm sitting and you were kind of antisynfuels, right?

Why are you supportive of it now? What have you learned?

Mr. CORCORAN. First of all, let me say that, as a constituent, I appreciate your earlier comments.

Mr. GROTBERG. You may yet run. [Laughter.]

Mr. CORCORAN. Second, let me respond to your question.

As you know, and as I am sure the members of the committee recall, I did very vigorously oppose the program that the Carter administration developed in cooperation principally with the leadership in the Senate at that time, back in 1980.

What happened is, as I pointed out earlier, this subcommittee wisely, in my judgment, had the right response to the problems caused by the Shah of Iran had insofar as its effect on the world energy market. This subcommittees responded with a modest $3 billion program to convert coal and oil shale into synthetic fuels, because they felt that, in the long term, that would be desirable.

I voted for that; I agreed with that. Unfortunately, that original notion got expanded considerably, both in terms of the price tag—it went from $3 billion to $88 billion—and in terms of the responsibility as to what originally was planned as a partnership between Government and industry, which became a responsibility for the Government, to assure the country that by 1987, 500,000 barrels a day of synthetic fuel would be produced and that by 1992, 2 million barrels a day of synthetic fuel will be produced.

I thought that was wrong because I think the value of synthetic fuels is to provide a long-term alternative when we exhaust our supplies of conventional oil and gas. And I did not think, and I certainly do not think today, that the massive program of subsidization would provide any kind of short-term relief. And the experience over the last 5 years has demonstrated that.

Mr. GROTBERG. You and I have shared some of this privately. Everybody knows that we are friends, but I understand, in previous conversations, that the dimension of the thing is now almost manageable as an ongoing function.

I've had a lot of experience with the Department of Energy over the years on projects, and on research. I'm trying to recreate the whole hydroelectric plant that cost $50,000 to install in the old Hotel Baker in St. Charles, IL, in 1928. We paid Harzon Engineering $54,000 to come out and see if it was feasible to get it going again.

In those days, energy money was flowing like water and the whole world was concerned—and rightly so, but wrongly economically.

My concern then, Mr. Chairman, if I could have your attention, is to quote your brilliant statement: "There's no question that the Synfuels Corporation has an unimpressive record so far."

Those are your words. But, while the rescission, if accomplished, will effectively abolish the corporation, it will abolish the Nation's synfuel program as well, a program difficult to establish, complex to administer, but critical to this country's future energy needs.

It seems to me that the baby was conceived in this subcommittee some years ago, the synfuels concept—am I correct, Mr. Chairman?

I know we have divided responsibilities now, as others have.

Chairman LAFALCE. The subcommittee did call for the development of a synfuels program. We did report out legislation using the authority of the Defense Production Act.

However, the program would have been considerably more modest than the program finally adopted by the Congress. Also the program would not have called for the creation of a separate, independent Synfuels Corporation.

Congress seems to be going in the direction that was initially established by this subcommittee, as opposed to the direction that was determined by the full Congress at that time in 1980.

Mr. GROTBERG. As a freshman Member of your distinguished subcommittee, I would urge you and the rest of the Members of this subcommittee to hang onto this concept, and fall in on the side of commonsense, to not throw out what we have learned.

Chairman LAFALCE. In case the gentleman from Illinois is unaware, there were 8 Members of the subcommittee with a "no" vote in a recent synfuels rescission before the full Banking Committee; 37 voted "yes." The gentleman from Illinois and the chairman were amongst the eight.

Mr. GROTBERG. Thank you. So you and I do agree, and I appreciate that, Mr. Chairman.

Chairman LAFALCE. But 8 is smaller than 37. [Laughter.]

Mr. GROTBERG. I am calling upon my own history. We tend to drop things just about when they are ready to come to some fruition.

I don't want to spend any more money or time on this whole process than anyone else, except that dumping the whole thing down the chute at this point in time is a bad trusteeship of taxpayers' money when the light is on the horizon, and the juices are rolling out there somewhere. The companies that are involved in it have known technologies and known resources. None of them are in very big financial trouble because of this, and probably we could nurture it along.

But once you get it in the Department of Energy, it falls into pigeonhole 37-B down in the subbasement somewhere, and I think that one day we are going to need alternative fuels. R&D is already on board with some people who know something about it, and it would be foolish to shove it into a great, big, unknown complex.

They have an awful time getting the office open every morning, incidentally, let alone getting something done.

Chairman LAFALCE. That is all aside from the possibility of any future primaries.

Mr. GROTBERG. Thank you, Mr. Chairman.

Chairman LAFALCE. Mr. Levin.

Mr. LEVIN. Let me just be sure that we understand the bottom line of your testimony. If you look on page 6, Mr. Noble, the last two paragraphs, as I read it—doing some combining of sentences and taking some of the qualifiers out—it appears that in your official testimony as Chairman of the Corporation you are saying in the second to the last paragraph that there will be a total commitment of $1.48 billion.

Do you see that?

Mr. NOBLE. Yes.

Mr. LEVIN. Then draw three dots, and then go down to the last paragraph, the third line from the bottom, "will go far toward establishing the knowledge and infrastructure necessary in the private sector to produce synthetic fuels commercially as a viable alternative to imported oil."

Mr. NOBLE. Yes, sir.

Mr. LEVIN. That is, I think, taking away all of the other language, your bottom line position, right?

Mr. NOBLE. Yes, sir, that is correct.

Also, I did say that an eastern coal project would round that out as well as a tar sands project, but these five—two coal, two shale, and one tar sands/heavy oil—would go a long way.

Mr. LEVIN. All right. So you are talking about $1.48 billion. That is over 10 years. That is complete, right?

Mr. NOBLE. To really be complete I would say that you should have at least an eastern coal project.

Mr. LEVIN. When I said "complete," I meant that we are talking about those projects over a period of time. The $1.48 billion isn't next year or the year thereafter. That is the total life of the project?

Mr. NOBLE. Over 10 years, that is correct.

Mr. LEVIN. How many experts in this field do you think would agree with that bald statement? Do you think most would?

Mr. NOBLE. I think most would. We have a few experts here, and I think most would agree that that will go a long way. It is not a complete program, but it is a fairly good representation at this point.

Mr. LEVIN. Wait a minute. I am just trying to hear you straight, and you talk about at this point as being fairly complete. I just want to be sure you stand by the statement here as being the position of the Corporation.

I am going at this not as an antagonist because I think I have been among a substantial number of people who have not been unsympathetic to the objectives but have become increasingly impatient and perplexed with the lack of progress, and I think my vote and that of a number of others is really an effort to try to shake the truth out of the sands. And it is very heavy oil we are dealing with, you know. We are trying to extract what is going on here.

You have got to tell a story that you think is correct now and that you can stand by and you can substantiate, and I just saw this testimony this morning.

The subcommittee staff has moved documents to us as quickly as possible. The chairman and the staff have done a wonderful job of trying to prepare for this testimony and prepare us.

I just want to be sure I understand your testimony. You are saying that a total commitment of $1.48 billion will go far toward establishing the knowledge and infrastructure necessary in the private sector to produce synthetic fuels commercially as a viable alternative to imported oil?

Mr. NOBLE. That is correct, and I stand by that statement.

I also said in the line above it that an eastern coal project—and there are a couple of technologies—could be very helpful as well as the tar sands project. But these five projects would go far, as I said, in establishing the necessary knowledge and the infrastructure.

Mr. LEVIN. I would suggest that if that is your position that you begin to fully substantiate it to the House and the Senate. I don't think at this point most people would believe that conclusion because synfuels today has a credibility within this institution that I think may be reflected in the vote. It may overstate it. I think some people were voting out of faith, not out of conviction that the Synfuels Corporation could produce.

I would urge that you very much substantiate that, and then there can be an argument as to who can best carry out a $1.48 billion, 10-year program that will go far toward producing the knowledge and infrastructure necessary to produce synthetic fuels commercially as a viable alternative to imported oil.

Let me just ask you one last question, getting into the area of who should implement it: If we are talking about a 10-year, $1.48 billion program, why do we need a separate bureaucracy to implement that, and how much is that bureaucracy going to cost?

Yesterday I made fairly explicit my view about commercialization activities in DOE in the past.

Why, with that kind of a program, should we have a separate bureaucracy?

Mr. NOBLE. When you have the program complete—with the five projects, I don't say it is totally complete.

Mr. LEVIN. Now, don't hedge, Mr. Noble.

Mr. NOBLE. I am not hedging. I said it as closely as I possibly can state it for the record.

I think that those five projects themselves will go a long way.

Mr. LEVIN. But assume that. Why shouldn't that program be lodged in terms of implementation within DOE or someplace else? Why do you need a separate bureaucracy?

Mr. NOBLE. Let me say first of all, that I probably will not be here to do that, so I am not speaking as a person who wants to stay in Washington. However, there are some advantages to have this as a separate entity. I also could argue the other side. But I think there are some distinct advantages to having it in place. Basically, after you get the program Congress wants, whether it is five projects or whether it is seven or eight projects. It would be much better to take this program and let it sit here as a monitoring unit. It is going to need some monitoring wherever it is; whether it is the Department of Energy or the Department of the Treasury, as present law requires. It will need to be monitored so that the taxpayer knows that the money is being spent properly.

Then you can weigh the results of the plants to see what develops because we don't know whether we are going to need synthetic fuels. This is what I said from the very day I came to Washington—that the program as initially conceived was way too massive and expensive, that the chances for building 30 or 40—and that is what you were talking about back in 1981—big plants at one time when the design of them has hardly started was nil.

And I think I have done a very poor job in explaining the necessity of doing the design work first to keep from having embarrassing cost overrun situations. We have avoided that, but we have not avoided the criticism for going slow in the initial instance, and now they say we are going too fast.

Frankly, we will have a very good small program which will demonstrate the use of these resources. Whether it is the Department of Energy, the Department of the Treasury, or whether it is an independent unit monitoring those probably is not going to make a lot of difference, but I think the accountability could be more direct.

I don't plan to be here to monitor these plants. I hope Mr. Corcoran or somebody else is running it at that point, wherever it is.

But you have a good question, and it is something that Congress really should think about, where you want it after we have the job done. I say let the Synthetic Fuels Corporation get the basic job done.

Mr. LEVIN. That means signing the contracts?

Mr. NOBLE. Yes, sir.

Mr. LEVIN. How long do you estimate that will take?

Mr. NOBLE. The three projects that we have in front of us are very close to being signed at this time, and bear in mind they have been negotiated for 2 years.

Mr. LEVIN. And the other two?

Mr. NOBLE. They might be anywhere from a year to two years away, depending on how fast they get their work done.

Mr. LEVIN. Thank you very much. Thank you, Mr. Chairman.

Chairman LAFALCE. Thank you.

Just so that you know where I am coming from, I feel strongly that the United States needs a synfuels program that will require the involvement of both the private and the public sector. I am not as strongly convinced that we need a Synthetic Fuels Corporation in order to have such a program.

But I am fearful, given the disposition of this administration toward energy policy and toward governmental involvement in the private sector, that if there is an elimination of the Synthetic Fuels Corporation at this point in time, there might also be, wittingly or unwittingly, an elimination of a synfuels program.

Therefore, I am very concerned about what I think has been the precipitous nature of the reactions on the part of the Congress, especially in light of the action that was taken by the 98th Congress. It is not as if this was an action taken on an $88 billion program, no. Congress acted, and acted as recently as last year.

Now, with that in mind, a few simple questions: How long is your term of office, Mr. Noble?

Mr. **Noble**. Seven years.

Chairman **LaFalce**. When does that expire?

Mr. **Noble**. I think it is 1988, but I am not thinking in those kind of terms, sir.

Chairman **LaFalce**. You have a reconstituted Board of Directors as of approximately when?

Mr. **Noble**. It was November or December. It was appointed before that.

Chairman **LaFalce**. How many members of the Board of Directors are there?

Mr. **Noble**. There are five at this time. There are seven that are authorized.

Chairman **LaFalce**. That includes you, Mr. Corcoran, and three others?

Mr. **Noble**. That is right. It takes four to act, to make decisions, and they have to all agree.

Chairman **LaFalce**. How many are called for in the legislation, seven?

Mr. **Noble**. Seven.

Chairman **LaFalce**. Do we have any expectation of those other two vacancies being filled?

Mr. **Noble**. Not to my knowledge, no, sir. I really don't know the up-to-date situation.

Chairman **LaFalce**. Do the other three members of the Board of Directors feel that the Synthetic Fuels Corporation should stay in existence, or do some of those members actually feel that the U.S. Government would be better off and the synfuels program would be better off, if the Synthetic Fuels Corporation were not only permitted to expire but caused to expire?

Mr. **Noble**. I would not speak for individuals, but I think generally they feel that we do need this basic program. As to whether or not they feel it should be extended into the future and how far, I don't think I should speculate. But I do think everybody is committed to seeing this basic program done.

Chairman **LaFalce**. Tom, you were quoted yesterday from the days when you were a Congressman. People have been trying to characterize your position as opposed to the Synthetic Fuels Corporation when you were a Congressman and in favor of the Synthetic Fuels Corporation as vice chairman.

Would you care to clarify this?

Mr. **Corcoran**. First of all, Mr. Chairman, I did of course oppose, as you well remember, I suspect, the massive $88 billion program because of the price tag and also because of the production goals and also because I thought the concept was fatally flawed.

The concept at that time was that synthetic fuels would be used to back up imported oil. At that time I thought that was nonsense. I thought the way to respond to the energy crisis that we were experiencing back in 1979 was to change our regulatory policies to provide incentives to produce more oil and gas from conventional sources.

But from the standpoint of synthetic fuels, I think there is a need for Government involvement in synthetic fuels. I voted for it, the legislation that emanated from this distinguished subcommittee in May 1979.

Second, in my work as the senior Republican on the Oil and Gas Subcommittee of the distinguished Energy and Commerce Committee, I constantly advocated a change in the policy.

Finally, the President of the United States and the Congress of the United States in October 1984—in a long overdue fashion, I might say parenthetically—responded to those of us who wanted to make changes, and it was only because of that change that I was willing to accept the request of the President of the United States to serve on the Board of Directors, and I took that position in November 1984 and was sworn in on December 13, 1984.

Since that time, I think that if people with an open mind and a commitment to synthetic fuels and a concern about the expense of the program were to examine what we have done, as we discussed here this morning, I think you'll find that finally we are getting in place a synthetic fuels program. And second, we're doing it at a whale of a lot less cost, because of the change in the program that the Congress directed.

So I think——

Chairman LAFALCE. Good enough. I just wanted to clarify that. I am going to get to the question as to whether, in terms of the burden of time, you've been pushing too fast in anticipation of congressional action, but we're going a little bit backwards. It is my understanding that you now have a position, you've had as of the past 2 weeks or so, that no new commitments will be made until such time as the administration has formulated a position with respect to the future of the Synfuels Corporation; is that correct?

Mr. NOBLE. No, it's not correct. The question arose, and I don't discuss Cabinet meetings with the Domestic Policy Council, but I just want to tell you what I said in this regard. When it was decided that they would postpone the decision until the next meeting, the question arose as to whether or not we intended to make project decisions on the following Tuesday, which was this past Tuesday [Sept. 10, 1985].

I said that I don't make decisions before the other directors. I did state that we're not throwing money out the door, as some people accused us of doing.

I have personally stated since the very beginning that I would not sign any project until it was absolutely ready to be signed. And I said that the facts are that we have three projects that are getting very close to being ready to be signed, that as far as this Board meeting next Tuesday is concerned—this was on Wednesday—two of the projects, the two bigger projects, absolutely couldn't be signed, because they were not even close to being documented. They were close, but they wouldn't have been ready on Tuesday.

I said the third project, which is the smallest project of the three, could possibly be ready legally, but I said, personally that I wouldn't sign anything until I've had a chance to review the documents. And I guessed that the other Directors would want to do the same thing. But I said I thought all three of these projects could possibly be ready by our Board meeting on the 24th.

So I made no commitment other than to use very deliberate action. And that is what I have done since the very beginning. And I think the other Directors are bound by those same rules.

Chairman LAFALCE. When do you anticipate a decision by the administration?

Mr. NOBLE. I honestly don't know, sir, when they will have a meeting. I really don't know, but I did tell them, clearly, as one director that, I knew two of the projects weren't ready. I think they will be, and I think possibly all three of them will be ready for the next meeting.

Chairman LAFALCE. We had asked the Department of Energy to testify at the hearing today, and they begged off because they do not have an official administration position.

We were pressing them, and we look forward to receiving their testimony in the near future, but it is unfortunate that the administration does not have a position. I think the fact that the administration does not have a position has made the ability of the Synthetic Fuels Corporation to function efficiently and effectively that much more difficult.

Had the administration been solidly behind the Synthetic Fuels Corporation, it seems to me that you would have been able to function much more effectively.

Mr. CORCORAN. Mr. Chairman, I wonder if I might respond to one aspect of that comment.

Chairman LAFALCE. Surely.

Mr. CORCORAN. The administration did sign—the President of the United States did sign the legislation back in October 1984. Yes, it is true, for understandable reasons, here in the House of Representatives and in the Senate of the United States and within the administration, that because of concern about credit, because of concern about deficit, and all of the other concerns that are part of this matter, that the subject is under review, but in terms of a decision, the President of the United States signed the legislation in October 1984, and that is the law today.

Chairman LAFALCE. Congress passed that. That was the law as of today, but the point is, a good many Members of Congress have been debating and urging much more stringent action, and during that period of time, the administration has been virtually voiceless.

Mr. CORCORAN. As a matter of fact, Secretary Herrington, at a hearing of the Fossil and Synthetic Fuels Subcommittee of the House Energy and Commerce Committee, was asked specifically—this was as recently, as I recall, as 2 months ago—during the time that the House was taking up the issue he was asked specifically for his position as the Secretary of Energy on H.R. 935. He said, "I am opposed to that legislation."

Mr. NOBLE. Also, in my answer from Mr. Regan from the White House which was signed by Jack Svahn, that letter—and I can furnish a copy of it—did say that they thought it was reasonable for us to sign projects that we thought reasonably would not be big burdens to the taxpayers and were scaled back to commercial scale, but smaller.

This is exactly what we have in front of us. And I think we are well within the guidelines that we were given in June.

Chairman **LaFalce**. Mr. Corcoran, please try to dig up the transcript of that hearing. I want to find out if that was a personal opinion of Mr. Herrington, or if that was an opinion expressed on behalf of the administration. That will give us guidance on the formulation of future administration positions.

[See hearings held by the Subcommittee on Fossil and Synthetic Fuels, Committee on Energy and Commerce, July 15, 1985.]

Mr. **Noble**. One last comment, going back to the nature of the program itself.

I said from the very beginning in the first speech I ever made as chairman, that I would like to see a few plants in place that would develop the national security option. When I felt that option was in place, I would feel that my job was over, and I would go home. That is what I would like to do. I think whether it stays as a separate entity is a decision for Congress. I would be happy, at some point, to use my judgment on it, but I do think there are merits to its being independent, even if just in the monitoring phase. But I will go into that in some detail, if you care, at some later point.

Chairman **LaFalce**. Let's do it right now.

Suppose you were going to start from the beginning. This subcommittee didn't initially create a separate entity, but we have a separate entity, and there is a ground swell of opinion that says, well, there ought not to be a separate entity. There ought to be reduced funding and have it given to the Department of Energy.

What are the relative advantages and disadvantages of a separate entity, as opposed to something within the Department of Energy or the Department of Defense?

Mr. **Noble**. Let me say that I recognize there is a certain value to having control every year over the budget. When the Synthetic Fuels Corporation came into being there was so much pressure to sign up projects. I feel that I have been resolute in not signing projects that were immature, because that is the very best way, in my opinion, to embarrass a program. People were saying we were too slow. But in the real world, I don't care what it is that you are building, if you design it down to the last door knob, as nearly as you can, your ability to get those costs where you think they will be, is much more likely. And I would say that the fact we didn't have to—as the old saying says—spend it or lose it, so to speak—has saved this country billions and billions of dollars.

I don't think if I had been sitting here, I probably would have resigned before I would have done that. But the pressure was tremendous. And I'll give you a good example. One of those projects was the Colony Project out in Colorado, which you all know about. It shut down a few months after it was started. I was almost on bended knee to say that that project should not be signed. Not because it didn't have one of the finest big companies in the world at the head of it and that company was not asking for any assistance, but a very small company was asking for assistance. They had been granted $1.12 billion, but the design was a year to a year-and-a-half from being where they could really estimate costs correctly.

I think that's correct, is it not? My point was not that this was a good project or couldn't be a good project, but with the design so immature, if the project gets in trouble, the little company that was loaned the $1.12 billion had just a fraction of that as the total assets of the Corporation, and Uncle Sam would have to pick up the difference.

The project was signed by DOE. It came to the Corporation a few weeks later, when we were "operational." They had a $105 million draw that was due in 10 days. The company had already borrowed $78 million. And I asked where is the collateral? Where are we going to be protected for the future?

You know what a put is, well, they did have a put, but that ran out in December of 1981. The next draw wouldn't have been until the next spring. They knew then that they were going to have big cost overruns. One of the people that I was paying one of these horrendous salaries to, a few thousand dollars more than Executive Level 1, said to me, "look, our estimate is this project may have 40 to 50 percent cost overruns when they get through the design of it."

We asked the Exxon Corp. to extend the put to this little corporation for another year, if they really believed that they were going to be going ahead. When they looked at their hole card, they realized that their design had a good chance of having big cost overruns, and they decided to cancel the project.

There is not any question in my mind that we saved at least a half a billion.

We know we saved $78 million which the Government had already put out.

Chairman LaFalce. You are suggesting that this would not have been the case, had it been the Department of Energy, as opposed to the Synthetic Fuels Corporation?

Mr. Noble. The Department of Energy was telling us to loan the money, and we refused to loan it. And the major company, it's not a secret, Exxon, admitted that it was a good decision that had been forced on them.

Chairman LaFalce. Other than that anecdotal example, is there any other greater justification for a corporation, as opposed to the Department of Energy or the Department of Defense, Mr. Corcoran?

Mr. Corcoran. Mr. Chairman, let me try to respond to that as well, based on my experience with this subject in the Congress and my experience over the last 8 or 9 months with the Corporation.

First of all, I think you have to evaluate what should be done today, in terms of what is needed today to complete the first phase of the program.

We've heard discussion about a number of projects. Perhaps it's five, perhaps it is seven or eight.

Chairman LaFalce. That concerns me too. Should we have a fixation on the number of projects?

Mr. Noble. No, we should not.

Chairman LaFalce. Maybe it is 20.

Mr. Corcoran. And with respect to the first phase of the program, I think that what Congress did late last year should not be changed. I think that for us to complete phase 1 of the program———

Chairman LaFalce. Phase 1 is what, again, Tom?

Mr. Corcoran. Phase 1 would be a program that would identify the key resources and the two or three technologies which would enable us to develop each of those resources. There are in the act, basically, three resources—coal, oil shale and so forth. So we need one or two technologies, possibly two or three, to develop each one of them, depending on the magnitude of the differences among those particular resources.

Now we are relatively close to doing that. We've got the two coal projects, one producing at Cool Water, one under construction called Dow Syngas. We've got three other projects, as you've heard here this morning, which are relatively close to final contract. Two of them are in the oil shale resource, which gives us something for an oil shale program, and another one is in heavy oil.

We are not yet in a position to take anything close to final action on an eastern coal project or a tar sands project

With respect to completing that program, I think that we should not cripple the current program.

Second, however, and this is the next question, once we have done phase 1, then what kind of entity, what kind of Government mechanism do we need?

I would submit that we should have an entity that would possess certain characteristics. No. 1, I think it should be independent. Whether it is a separate corporation or an independent entity within an existing agency, it must be independent. So long as you have independence, so long as you are not making decisions that would be influenced politically, and so long as you have decisions that are being made that would not cause unnecessary uncertainty in the private sector about those decisions, then I think that those decisions will enjoy the confidence of the Congress and the President of the United States.

Chairman LAFALCE. Tom, you suggested that a separate entity was desirable, because then it would not be subject to political influence.

Mr. CORCORAN. That is correct.

Chairman LAFALCE. Some individuals have suggested that the actions of the Synthetic Fuels Corporation in the past several months are based, primarily, on a document that was prepared for you, which had as its principal thesis, actions that could be taken by the Synthetic Fuels Corporation in order to win the game of political favor within the United States, especially in the U.S. Senate. And that, therefore, the Synthetic Fuels Corporation was, in fact, acting first and foremost in a political fashion; secondarily, perhaps, in a complementary fashion, perhaps not so, for substantive reasons.

Would you care, at this point in time, to take up this issue, which certainly is going to arise elsewhere?

Mr. CORCORAN. Well, there is no basis for that assertion. There is what has been described as "the plan"; it was prepared by an individual on our staff, who happens to work directly for me. He is an idea man. In my work in the Synthetic Fuels Corporation and my work in the Congress of the United States, I've always tried to associate myself with people who can develop ideas. In this instance, he did, at his own instigation, develop a series of suggestions as to what might be done.

I looked at those ideas. I regard some of them as being good, most of them as being not so good, and certainly, from the standpoint of any kind of policy by myself or any kind of policy decision by the Synthetic Fuels Corporation, there was no decision, there was no action, no corporate policy that was based on the suggestions of one individual, which, in many instances, were not useful suggestions.

So I think any suggestion that there was any kind of corporation policy based on the suggestions of one individual staff guy is non-

Chairman LaFalce. First, so you understand where I am coming from, I think it would be naive to think that members of the executive branch don't frequently act in a way that is going to gain favor with influential Members of the Congress.

What I am concerned about is that no decision is being made for political reasons as opposed to substantive reasons.

Mr. Corcoran. Yes.

Chairman LaFalce. I am just curious, though, if the commitments that were made from the time of this memo to the present would have all been made in the absence of this memo.

Mr. Corcoran. There is no connection between this memorandum and the decisions that we have made.

Chairman LaFalce. Would Mr. Noble care to comment?

Mr. Noble. Yes, sir. I never saw that piece of paper. The first time I knew of it was when Mr. Dingell wrote his letter, and I questioned the staff. I had never seen it until then, and if there was any effort to do anything about it, I had no knowledge of it.

Let me also say that I have told our staff from the very beginning—and I think any one of them would verify this separately, privately—that we have said these decisions are not going to be political decisions. Give us the facts.

You asked for another anecdotal example, and this is something that one of the Assistant Secretaries testified to, which I guess maybe I am trying to let you know, that all of our decisions haven't been bad—the Great Plains project, which in my opinion should be kept and should be saved.

But when that was being negotiated, I made a very strong recommendation. I suggested that they not sign it because I said, look, you are making a loan guarantee of over $2 billion based on what you think energy prices will be for the next 10 years, oil for the first 5 years and gas for the next 5.

I said, the energy industry and everybody else that had been projecting prices—and this was long before anybody knew prices were going to fall out of bed like they did—but I said, the energy industry as well as other people projecting prices, if they project them correctly 2 or 3 years out, much less 10 years out, it is a miracle. I said, if you are going to sign that project, put some price guarantees in it right now; if you don't you are asking for trouble.

I do think that the project is a good project. I have said so in the past. But again, I think we haven't been all wrong in what we have suggested. We have been slow and deliberate.

Chairman LaFalce. Your new approach is pioneer projects basically, right?

Mr. Noble. From the beginning. These are first-of-a-kind commercial plants, yes, sir, but the technology is proven. We are not trying to make commercial plants out of anything for which the R&D hasn't been done.

Chairman **LaFalce**. Is the recent support of the $1.4 billion financial package for the Great Plains coal gasification project consistent with this pioneering project concept as opposed to commercialization?

There seems to be some inconsistency there. Is that the reason that the Department of Energy turned down the Great Plains project?

Mr. **Noble**. My feeling is it was a mistake, and I said so personally and in public. I think it was a real mistake.

This plant has a lot to teach us in the United States now.

Chairman **LaFalce**. The Synthetic Fuels Corporation did decide to support it, though, right? Was that over your objections?

Mr. **Noble**. No, sir. But what I said—this was back in 1981 when DOE signed that project, was that their chances of needing price supports were very possible because our ability to estimate what prices are going to be 2 or 3 years out is almost impossible—the only thing we have proven is that we can't estimate those prices because we don't know what the circumstances are.

Chairman **LaFalce**. We don't have too much time left because of the bells.

Mr. Corcoran.

Mr. **Corcoran**. Very quickly on Great Plains.

Great Plains is a project that has been built. It is in operation.

All the projects that we have been talking about here are ones that we got at the design stage. For them you can restructure, you can downscale, you can get the kind of cost-effective project that we were talking about for a lot less money, and giving us the information and the data to develop the synthetic fuels capability. Not so with Great Plains. It's already built and in operation.

We were asked by the Department of Energy to help provide assistance to a project that was already in operation. It has got 14 gasifiers when, from our standpoint, it probably only needs one or two. That is one aspect of it that has expanded the cost of that project.

We went in there and I think made a proposal which was better than the one that was ultimately accepted, because we said, all right, it is in operation and we will have three standards by which we will decide how we can provide assistance: No. 1, a small subsidy; No. 2, extended operation; and, No. 3, that they pay back the debt to the Government.

We think that is the right solution. It gives us synthetic fuels information, and it keeps the burden of the financial responsibility on the sponsors where it belongs, not the Government. And we get the experience of extended operation.

Chairman **LaFalce**. So you would not have gone this route if you were asked to start it out now, but having started it out 4 years or so——

Mr. **Corcoran**. DOE started it out.

Chairman **LaFalce**. Right. Then you thought this was the best approach to deal with the present situation?

Mr. **Corcoran**. Right.

Chairman **LaFalce**. All right, thank you very much.

Mr. **Corcoran**. We looked for a good solution to a bad problem.

Chairman **LaFalce**. Thank you, Mr. Corcoran.

Gentlemen, I thank you very much for your testimony. I thank you for the efforts that you have made, especially since the legislation that Congress passed in October 1984.

I look forward to working with you as you, the administration, and the Congress wrestle in the best manner to effectuate a synthetic fuels program in the future.

Thank you very much.

[Whereupon, at 11 a.m., the subcommittee was adjourned, subject to the call of the Chair.]

[The following statement was received by the subcommittee for inclusion in the record:]

Associated Governments of Northwest Colorado

TESTIMONY OF MR. RICHARD C. POND, CHAIRMAN
ASSOCIATED GOVERNMENTS OF NORTHWEST COLORADO, *
SUBMITTED TO THE HOUSE BANKING SUBCOMMITTEE ON ECONOMIC STABALIZATION

Chairman LaFalce and Subcommittee members:

This testimony is submitted in opposition to HR 935 and other bills before Congress that would abolish the U.S. Synthetic Fuels Corp. and terminate funding for the U.S. Synfuels program. Your Subcommittee should be concerned about these bills because Congressional approval would be an abrupt reversal of U.S. energy policy established by the 1980 Energy Security Act. It would be a serious blow to this country's national defense goal toward energy self sufficiency. It would also be a devastating economic blow to northwest Colorado where we face the boom/bust cycles of energy development and where more than $1 billion has been invested toward synfuels development upon reliance of Federal energy policy.

Late last year Congress approved a compromise calling for synfuels funding of $8.2 billion to be administered by the U.S. Synthetic Fuels Corp. These are "off-budget" funds for future price and loan guarantees--not current outlays. This is a far more modest program than the $88 billion program envisioned in 1980 when the Energy Security Act was enacted. Since the Congressional compromise was reached the SFC Baord has been reconstituted and has now begun its reconsideration and review of pending synfuels projects. The new SFC Board should be given a fair chance to develop a viable synfuels program. It appears that they will be able to develop such a program with an investment of far less funds than the money already authorized by Congress.

Mr. Chairman, the Associated Governments of Northwest Colorado and the local governments within this region want your subcommittee to know that we support the two Colorado Oil Shale projects located in our region now pending assistance from the U.S. Synthetic Fuels Corporation. These two projects, Union Phase II and Cathedral Bluffs, have received letters-of-intent from the U.S. Synthetic Fuels Corp. for price and loan guarantees in order to proceed with commercial scale synfuels development. The successful development of these projects will be an important step in our National Defense needs for domestic energy resources. The continued development of these projects will also help stabalize the socio-economic investment cycle historically associated with energy development.

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*The Associated Governments of Northwest Colorado is an association representing Garfield, Mesa, Moffat and Rio Blanco counties and the 15 cities in Northwest Colorado. Mr. Pond is also the chairman of the Mesa County Board of County Commissioners.

BOX 351 RIFLE, COLORADO 81650 TELEPHONE 303-625-1723

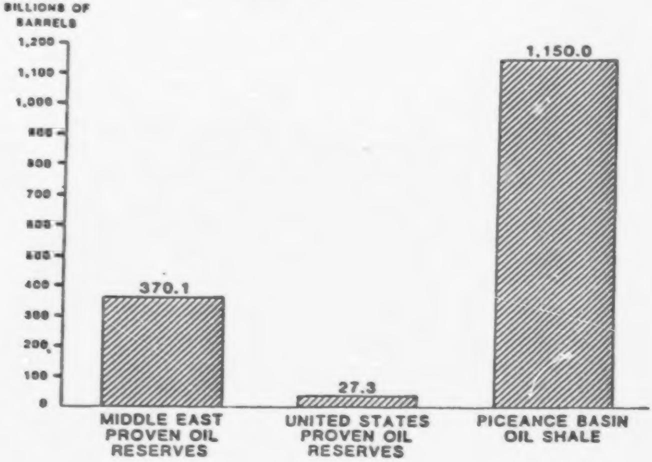
We believe it is essential that both of these projects move forward in order to truly test the technology, environmental monitoring and socio-economic aspects of commercial scale oil shale development. We do not want to wait for the next oil crisis before beginning development of this resource on a crash basis.

The Piceance Basin located entirely within our 4-county region in northwest Colorado, is a part of the Green River Formation which includes an estimated 1,150 billion barrels of recoverable shale oil or Kerogen. A thorough study by The Rand Corp. in July 1983 indicated that once the technology is developed an environmentally sound oil shale industry of 1 million barrels per day can be sustained in the Piceance Basin for at least 200 years. Oil shale development will not be a "30 year industry" as some critics have claimed once the technology is proven. There appears no question that this resource is necessary if this country is to achieve true energy independence.

BLM also estimates that associated with the Green River Formation oil shales, particularly in Colorado, are vast quantities of potentially valuable sodium minerals including: 29 billion tons of nahcolite, a potential source of industrial scrubbing agents that help remove sulfur from coal fired power plant gasses as well as other uses; and 19 billion tons of dawsonite, a potential source of alumina.

As the chart below indicates these oil shale resources are roughly equal to 40 times all other U. S. reserves of conventional oil and roughly 3 times the proven reserves of the Middle East countries. It is also estimated that the Federal government owns more than 80% of these resources, under Federal land in our region.

Piceance Basin Shale Oil



The Union Phase II project will utilize an improved version of the Union technology for processing oil shale. Technical difficulties with Union's Phase I process demonstrate the need for continued improvements under operational conditions.

New technology proposed for this project includes a "fluidized bed" cooler process to replace shaft coolers used in Phase I. This is a type of cooling process that has been used for coal fired power plants - - but it has never been applied to oil shale. The Phase II project will also use the next generation retort with a more energy efficient heating process. The Phase II project will be a crucial test to determine if economics of scale can be achieved with improved technology.

The Cathedral Bluffs (C.B.) project will be the first commercial scale test of modified in-situ (M.I.S.) underground retort process. It will also utilize an above ground retort for excatated oil shale. Occidental and Tenneco Oil Companies are partners in this venture.

We strongly believe that both of these projects are necessary to minimize the cyclical boom/bust problems related to the peak period use of construction workers in the region. One project (Union) is in Garfield County on privately owned land and the other (C.B.) is in Rio Blanco County located on Federal land. The phasing of these projects will help offset a mass"exodus" of up to 2500 workers required for each construction phase. When the C.B. construction peak diminishes, Union Phase II is scheduled to begin. The Union Phase II project itself includes several construction phases rather than a single peak. Ultimately, more than 3000 permanent non-cyclical workers will be employed by these two projects for their ongoing operations.

These two projects will also allow the establishment of a federal/state/local system for monitoring and managing the cumulative environmental impact of more than one project on the air, water, wildlife, public health, land reclamation and other environmental management concerns in our 14,000 square mile region. For example BLM is developing an "air pollution dispersion model" and air sampling program to make sure any oil shale project on Federal lands will meet all National and State air pollution requirements. Federal Lease stipulations will be included to require compliance through such a monitoring program. The key is to develop a good monitoring system before large scale development is upon us.

These two projects will also be the key to the success of the Dept. of Interior's long term leasing program. It is estimated by BLM that approximately 80% of the nations total recoverable oil shale reserve is located on Federal lands. The success of the Dept. of Interior program for future leases will have significant affect on royalties and bonuses paid to the Federal treasury and the State of Colorado in future years. These royalties and bonuses are shared 50/50 between the Federal and State Government. State law requires the State share to be placed in the Oil Shale Trust Fund (OSTF) which is primarily the source of capital project funds for the schools, roads, water and sewer projects, etc. required by local governments in this region.

More than $1 billion has already been invested in anticipation of these two projects proceeding. Union Oil Company has invested more than $650 million; C.B. has invested more than $350 million; and more than $300 million has been invested for the housing, schools, roads, water and sewer and other public facilities which are now in place for the initial development period of these projects.* Governor Richard Lamm has said "To cancel these projects now does not make sense. We lose the value of our investment to date and prevent our ever knowing whether such a domestic resource can be used to our benefit."

BUDGET DEFICIT VS. TRADE DEFICIT

The primary argument put forward to terminate the SFC program is somehow aimed at balancing the Federal budget deficit. We believe this is a short sighted and false argument.

The SFC funding is through future price and loan guarantees which will have minimal affect on the 1986 deficit one way or the other. These guarantees must be viewed on a long term basis for the next 20 years. If the projects are successful the loan guarantees won't be needed or will be repaid. If unsuccessful the price guarantees wont' be utilized. Either way all of the SFC funds won't be expended.

Further, the "revenue sharing" features in the SFC contracts should result in repayment of most of the price guarantees after the initial "Return on investment" period. This will occur after commercial scale production is sustained. In fact, if viewed over the life of the projects, the price guarantees will average less than $1 per barrel of total production.

*SOCIO-ECONOMIC INVESTMENTS IN NORTHWEST COLORADO SINCE 1980 RELATED TO SYNTHETIC FUELS DEVELOPMENT (5-1-84)

Source of Investment		Estimated Amount (Millions)
Oil Shale Trust Fund		$ 75.0
State Energy Impact Fund		28.7
Local Public Works and Road Funds		25.3
Direct Industry Contributions		90.0
	Sub-total	$219.0
Battlement Mesa, Inc., investment		120.0
	Total	$339.0

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Any "budget" analysis of these projects should also recognize that up to $10 Billion could be returned to the Federal budget during the life of these projects if successful through employee and corporate income taxes. We believe that statistics and data concerning the SFC price guarantee contracts has been distorted and confused by comparing "inflation" data vs. "real dollar" data. Another example of distortion is the argument that Union will receive "huge tax breaks". Union will only receive existing energy and production tax credits all other companies receive. Such credits should amount to no more than $0.3 billion compared to an estimated $3.2 billion private investment to be made. Union will also be subject to 50% corporate taxes on its production.

However, the counter-argument that these projects will help reduce our serious balance-of-trade deficit are valid. Each barrel of commercial synfuels production will result in a reduction of one barrel of imported oil. Each 100,000 barrel per day project will result in more than a $1 billion per year reduction of our international trade deficit.

When Congress was considering similar legislation last year that would have abolished the SFC the Wall Street Journal, New York Times, and the Washington Post all editorialized against such a shortsighted move. They recognized the bogus arguments that this would somehow help balance the Federal budget. Perhaps the Washington Post said it best when it editorialized "(The central issue here isn't money. It's whether the federal government does not share the responsibility to diversify the country's energy sources and hold down oil imports - - which, with the economy's recovery, are now rising again quite rapidly. To abandon synthetic fuels development now would be wanton.)"

NATIONAL DEFENSE NEEDS

The goal of energy independence for this country is just as valid now as it was in 1980 when Congress enacted the Energy Security Act. It is clear that there is a finite supply of liquid oil reserves that the current oil "glut" is of a temporary nature. The Congressional Office of Technology Assessment released a study just last year that demonstrates the continuing vulnerability of this country on our allies on imported oil from "politically unstable" countries. This is especially important to the Dept. of Defense who is heavily dependent upon liquid petroleum fuels.

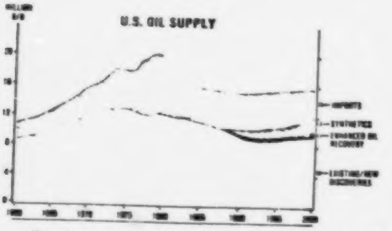
In 1983 the Dept. of Defense certified pursuant to Executive Order 12.242 that synthetic fuel is needed to meet national defense needs. The U. S. Airforce on Oct. 3, 1983 announced its program RIVET SHALE which will utilize shale oil from the Union project to validate its use as a jet fuel. (See next page for a description of the RIVET SHALE program.)

The Congressional Research Service indicates that an $8.2 billion SFC program can produce a "near term" production level of 99,000 barrels per day. This could lead to a long term level of more than 1 million barrels per day. The CRS study also indicates that this level funding also allows an Eastern Coal Gasification project that would produce an equivalent of 4,000 barrels-per-day of energy. The technology developed by these projects is essential

Project: Rivet Shale

RIVET SHALE is the project name for the Air Force program to validate the use of shale oil derived JP-4 in operational aircraft.

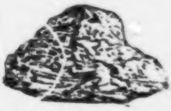
Why Shale Oil?



Despite reports of a world oil "glut", the US still imports a big percentage of its petroleum energy requirements. In fact, if we project out through the year 2000 we see existing conventional petroleum production will meet only one-half our energy needs.

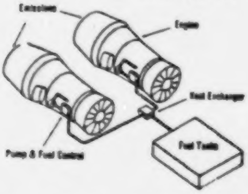
the extent we fail to develop domestic energy alternate to conventional petroleum, the U.S. will become increasingly reliant on imported oil whose sources cannot be guaranteed. Twice in the past 10 years Air Force stocks of jet fuel were seriously depleted because of curtailed oil supply to the U.S. In addition, shale is abundant in this country. Eighty percent of the world's recoverable shale(over 1 trillion barrels) is here in the U.S.

What is Shale Oil?



Of all the alternative fuels, shale oil most closely resembles conventional crude oil. It comes from a marlstone, several times the strength of concrete, containing a complex organic compound, kerogen. By heating this rock to temperatures of 700° to 900°F, the kerogen is released to form crude or "raw" shale oil. The more we learn about shale the better we are able to see it is not marginal but rather premium quality refinery feedstock.

The Air Force Program Research And Development



Air Force Systems Command, through the Aero Propulsion Laboratory at Wright-Patterson AFB, is conducting the ground test phase of the R&D program. Basically, each system that is fuel-wetted on board an aircraft is being examined to ensure performance, material compatibility and endurance standards are met. Since shale JP-4 meets or exceeds ALL the specifications of conventional JP-4 we expect equal, if not superior, performance resulting from its use. The ground test phase culminates in accelerated mission tests on F-111 and F-16 engine assets as well as limited flight tests at Edwards, Hill and McClellan AFBs.

Operational Validation

The second and final portion of our program consists of validating the long term use of shale derived JP-4 in operational Air Force aircraft. Tactical aircraft were selected because they provide a maximum number of flight hours for fuel used. Hill and Mountain Home AFBs also represent locations relatively uncomplicated to resupply from the source of current shale development projects. Shale oil from Union Oil of California's facility at Parachute Creek, CO will be refined in nearby Grand Junction. Shale JP-4 will then travel via railcar and pipeline to the two selected bases.

Air Force Logistics Command, through the Directorate of Energy Management at Kelly AFB, will oversee Operational Validation. The effects of long term, exclusive use of shale JP-4 are key to this program.

for our national defense needs.

CONCLUSION

The two oil shale projects have the strong local support of Colorado citizens and elected officials. They do not want to wait for another oil crisis. In addition to the Associated Governments of Northwest Colorado, Club 20, the Colorado Municipal League, the Colorado Legislature, Governor Richard Lamm, Congressman Mike Strang and both Colorado Senators Bill Armstrong and Gary Hart have endorsed the projects.

At the national level the AFL-CIO and the National Governors' Association have also supported the position that all letters-of-intent should be honored.

The National Governors' Association adopted the following position concerning synfuels development:

"Specifically, the national interest requires an energy policy based upon the accelerated development and commercial demonstration of synthetic fuels, and vigorous research, development, and demonstration programs to enhance the direct combustion of coal. Such developments are an essential part of the nation's mid-to long-term energy production strategy. The Governors continue to support a federal role in financing the development of diverse synthetic fuels technologies. Agreements which have been the result of long negotiations between industry applicants and the SFC should not be threatened by management problems or congressional attempts to cut back on our commitment to synthetic fuels. The Governors believe that all letters of intent which have been authorized or signed by the SFC should be honored and that the Administration should act immediately to reconstitute the Board of Directors and to solve any outstanding management problems. Project applications which have been submitted to date to the SFC in response to solicitations should also be given expedited consideration since these project sponsors have invested extensive time, work and funding in the preparation of their applications. Congress should fund the SFC at a level adequate to allow a meaningful review of these good-faith applications and development of the most meritorious projects."

The SFC program was established by Congress as a better alternative to the once-proposed Energy Mobilization Board which was considered necessary during a world oil crisis. The Energy Mobilization Board would have been given the power to override national, state and local environmental and land use laws. Northwest Colorado would have become a national energy sacrifice area.

We do not want the Congressional pendulum to keep swinging back and forth from crisis-to-crisis. The new SFC Board members have just been appointed. They should be given a fair chance!

Thank you for this opportunity to submit testimony.

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